AMERICAN BEE JOURNAL

DECEMBER, 1920

CAUCASUS APIARY OF MOVABLE-FRAME AND LOG HIVES AT NOVO-FONSK MONASTERY, NEAR THE BLACK SEA, IN SUKUM PROVINCE. THE TALL, SLIM TREES ARE CYPRESSES, WHICH ARE AS NUMEROUS THERE AS IN CONSTANTINOPLE. NOTE THE KEEPER'S HOUSE IN REAR.

WHEN THE BEES STING

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AMERICAN BEE JOURNAL,
Hamilton, Illinois

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	Size of stove inches	shipping weight lbs.
Big Smoke, with shield	4 x10	3
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Smoke Engine	4 x 7	2¼
Doctor	3½x 7	2
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The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive handlers.

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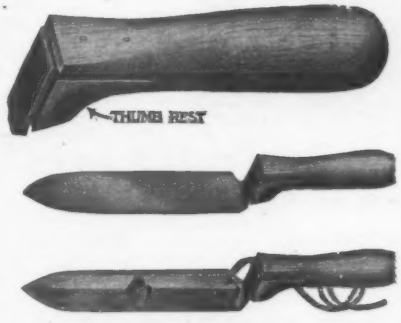
B. F. Kindig,
State Inspector of Apiaries.



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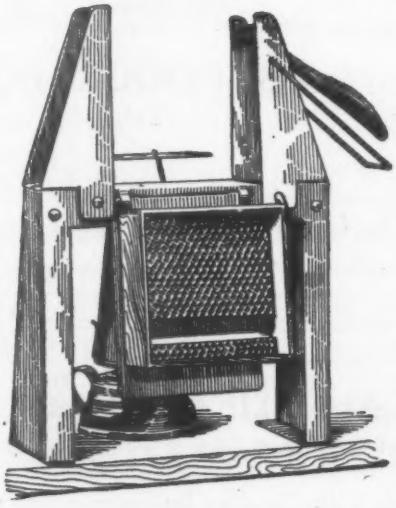

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2 lb Friction top cans, crates of 612
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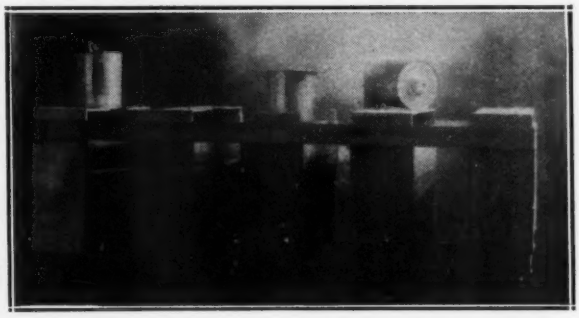

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1 pound pkg. bees $3.00 each, 25 or more $2 85 each
2 pound pkg. bees 5.00 each, 25 or more 4.75 each
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F. O. B. shipping point. Add price of queen wanted.

1 Untested Queen $2 each, 25 or more $1.75 each
1 select untested, $2.25 each, 25 or more $2 each.
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AMERICAN BEE JOURNAL, Hamilton, Ill.

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Every square inch equal to sample in every respect was the aim, and it was done at all times as thousands can testify who have used these goods.

A DADANT APIARY

Not satisfied with the mills they were using, they tried different workmen until they got a mill that would make a foundation without "Fishbone," as the bee-keeper called it; and also got mills that would make foundation of different weights from five square feet to the pound for brood to thirteen square feet for sections.

Now the Dadant Apiaries have increased to nearly a thousand colonies in ten apiaries. The different locations give a chance for tests in heavy flows, in light flows, in a dearth, for fall crop, for spring. All, so that the proper tests can be made, and only the most satisfactory foundation sent out to the many customers.

DADANT'S FOUNDATION EVERY INCH, EVERY POUND, EVERY TON EQUAL TO ANY SAMPLE WE HAVE EVER SENT OUT.

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DADANT & SONS, HAMILTON, ILLINOIS

Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking

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Because the materials are the very best obtainable.

Because you are assured of good service—guaranteed.

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Conditions this year are causing many men to change their previous buying methods. Buy cautiously, but be sure you get real quality for your money, the kind you get in "Beeware" only.

It will pay you to write or visit your "Beeware" distributer.

His name is on the catalog we will send if you ask for it.

SERVICE DEPARTMENT

To give users of Lewis "Beeware" better service and information, we announce the employment of E. W. Atkins, who began work at Watertown November 1. Mr. Atkins is well known to many American and Canadian beekeepers, has worked in large commercial apiaries, and for the past four years has been operating his own apiaries. After taking a degree at the Ontario, Canada, Agricultural College, Mr. Atkins served with the provincial and dominion apiarists of Canada. During the war he was in charge of bee culture extension work for the United States Government in Iowa, Missouri, Kansas and Nebraska. Later he has worked out of the Iowa Agricultural College at Ames for the U. S. Bee Culture Laboratory, and is well acquainted with the needs of beginners and commercial beekeepers alike. Address all communications regarding beekeeping to our Service Department, Watertown.

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AMERICAN BEE JOURNAL

VOL. LX—NO. 12 HAMILTON, ILL., DECEMBER, 1920 MONTHLY, $1.50 A YEAR

MISSISSIPPI

Glimpses of Beekeeping and Some Other Things in the Land of Cotton, as Seen by the Associate Editor

THERE is a wonderful change taking place in the South of late. One having visited Mississippi five years ago and again now, is struck by the rapid advancement. Cotton is the principal money crop in much of the South, and for a long period the price of cotton has been so low that it has hardly paid expenses. With a good price for its product the South has developed during the past few years as no other section of the country has done. The negro tenant has felt the change, and shows it. On my previous visit to the cotton country, the darkies were rather a dejected looking lot. The returns from their cotton were so small as hardly to supply the barest necessities, with nothing left for luxuries. Now, on Saturday and Sunday, one sees such gorgeous silk dresses among the colored women and silk shirts among the men as would give one the impression that they were millionaires. Many of them drive Cadillac and Hudson automobiles and wear diamond pins. Few of them have any comprehension of the value of money or realize that hard times may come again. At Greenville, I was told of an old darkey who was rather dubious about his annual settlement with the land owner. At previous settlements, he had usually found himself in debt for money advanced during the year, or, at best, with but a few dollars left to call his own. Last year when he presented his check at the bank he was astonished to find something like $2,500 still coming to him. In order to impress the old darkey with the amount of his wealth, the banker paid him in bills of small denomination. With so much money in one and two dollar bills the old fellow thought he had more money than he ever could use. On going into a store he dropped a bill upon the floor. When the fact was called to his attention, he replied: "Never min' about dat, never min' about dat, I got plenty mo'."

The delta region, which extends from Memphis south to Vicksburg, is a stretch of wonderfully fertile land. Here cotton grows to perfection, and one sees thousands of acres of it. Greenville is in the heart of the delta and apparently is a splendid beekeeping territory. It has never been my good fortune to meet a more wide-awake lot of beekeepers or more interesting people than were present at the Greenville meeting the first week in September. Here also I found some new honey plants, of which I had not heard before. The climbing boneset, which is mentioned elsewhere, grows abundantly in the rich lands along the streams. Mrs. Hill brought to the meeting a bunch of goatweed, or wooly croton (**Croton capitatus**), which she reported as an excellent honey plant for a short period of time. The goatweed grows abundantly along roadsides and in pastures across the northern part of the State. Although some species of croton have been mentioned as the source of honey in Texas and California, I had never before heard of honey from any species of croton east of the Mississippi.

The French mulberry

One beekeeper present said that although he was surrounded by cotton fields, he did not think his bees gathered any honey from it. When it was stated that cotton seldom yielded on sandy land, he replied that probably explained it, as his immediate neighborhood was sandy. This confirms the various reports on this point from other southern regions. Although white clover is generally regarded as best in the North, many beekeepers reported good crops from clover, although not every year. Button-bush, locust, persimmon, chinaberry, holly, heartsease and cowpeas were also regarded as important sources of honey there.

That the region is very favorable for bees can be seen by the fact that one man present had captured 80 wild swarms in one season. One drawback is the discrimination against southern honey in the northern markets. The explanation of

this is that honey is gathered from so many different sources that there is no uniform quality. Some of the Mississippi honey is of as fine a quality as goes to market anywhere. However, it would be difficult to select a sample of honey as typical, and supply the same customer with a second lot exactly like it, from a different place or at a different time. Although the northern bee-man has fewer sources of honey, his product is much more uniform and the honey going to market is very similar year after year. In the South it may happen that the bees from one colony will be bringing in honey of a different color and flavor from that coming to another hive at the same time. It seems to me that the remedy lies in the organization of co-operative associations which will blend the honey of a particular locality and establish a market for it under its own trade name. Unless this is done the bottlers are likely to continue to take advantage of the situation to force down the price.

There were several colored men present at the Greenville meeting and I was told that there were some very good beekeepers among them. We drove out to the apiary of Richard Grant, which was the nearest. It was well kept and a picture herewith shows both the apiary and the black mammy who bottled the honey.

The Agricultural College

Beekeeping is not neglected at the Mississippi College of Agriculture. R. B. Willson gives his full time to beekeeping, most of it being spent in extension work in the field. Willson is a live wire chap who makes a good impression, and who is a good booster for beekeeping, and especially for the State of Mississippi. To hear him tell it there is no better State than Mississippi and no better business than beekeeping. He is doing much to improve the methods in the localities where he works. Dr. R. W. Harned, the State Entomologist, has too many irons in the fire to give much of his personal time to beekeeping. However, in his official capacity he helps along at every opportunity. As Secretary of the State Board he supervises the activities of more than twenty field men who are busy with various problems of insect control. The Plant Board men are fine fellows. All are thoroughly trained men and several are interested in bees. A picture of the group in the field near Gulfport is shown in connection with this article. There was a very good meeting at the college, as there was also at Gulfport.

Field force of the Mississippi Plant Board

The Gulf Region

There is great development along the Gulf Coast. Large orchards of pecans and Satsuma oranges are being planted. Some of the land is very sandy and poor, while in other neighborhoods it is good. Fine shell roads are being built which make it easy to drive from place to place by auto. The woods are full of titi and gallberry, and failures of the honey crop are very rare. Near Pass Christian I again found some honey plants which were new to me. Mexican clover (**Richardia scabra**), is not a clover at all, but a weed introduced from the tropics. It is common in cultivated fields in the Gulf States from Georgia to Louisiana. It covers the ground in corn and cane fields after cultivation has ceased. The blossoms are small, but the bees seek them eagerly and, according to reports, gather much nectar from them. The Mexican clover is often cut for forage and fed to cattle in place of hay. The picture will give a good idea of the appearance of the plant. The French mulberry, also called Spanish or German mulberry in some places (**Callicarpa americana**), is a common plant in Southern Alabama and Mississippi. Although the plant grows from West Virginia to Florida and west to Texas, I can find no mention of it as a honey plant in any of the beekeeping literature. It seems to be regarded as valuable in Texas, as well as in the Southeastern States. The picture shows the fruit and leaves.

Another plant which seems to be valuable is a species of **Ludwigia,** probably **Ludwigia pilosa,** which we found in the swamps. I can find no common name for the plant, but it is found in swamps from the Carolinas to Florida and west to Louisiana. The bees were working these plants very busily at the time of the visit of our party, but we were unable to get much information as to their value to local beekeepers.

There are many plants common to Mississippi which are little known to the beekeepers, even there, and which are seldom mentioned in the beekeeping literature. Since there are some very active beekeepers in the State and the college is also taking up beekeeping seriously, we may well expect that much more will be known about the honey flora within a short time.

I was very favorably impressed with Mississippi beekeepers and beekeeping. There are many well-informed commercial beekeepers within its borders and it ranks well

R. B. Willson, beekeeping specialist, and R. W. Harned, State Entomologist of Mississippi

There are some good beekeepers among the colored population of the South

up to the front in development. There is a great diversity of conditions within the State, and a visitor to an isolated locality might find things very backward, but one who travels in all parts of the commonwealth and sees the best as well as the worst, will be convinced that Mississippi is in advance of some of the States which have made more noise about what they are doing. There are many side-lights on the trip which must be passed over for lack of space; the delightful hospitality of the people, the big plantations with their magnificent old mansions, and many delightful hours spent afield, will long remain as pleasant memories of the land of cotton.

MY FIRST AND LAST MEETING WITH DR. MILLER

I procured a copy of Dr. Miller's "Forty Years Among the Bees" in 1909, and through it and his other writings I have become a great admirer of the man, to such an extent that my wife suggested that, since we lived but 25 miles from Marengo, we should become personally acquainted with him. So on a Sunday in August, we motored to Marengo.

Arriving at the town, we enquired for his home. At the gate, however, I hesitated, under the impression that the Doctor might be very much reserved in his home life, and having also learned that he had been sick. But we disliked to turn back after coming this far. So we drove up a long avenue of basswood trees, to the home. Everything looked just as described in his book. We drove to the well and took a drink. By that time the Doctor came out. No introduction was needed. It seemed as if I had known him always, although he seemed very weak. He walked up to our car, shook hands and explained to my wife that he had an affection of the heart from which he did not expect to recover. He smiled, exposing a set of teeth that a young man would have been proud of. He called our attention to his rose beds that he might be justly proud of, then to his home apiary. In twenty minutes of visit my ideal was fully realized. We bade him farewell and started away in silence.

I had not been disappointed, but I wanted to hear what my wife had to say. Before we reached the public highway she spoke: "Isn't he a nice, clean old man?" I cannot recall a single act of my life that gave me more pleasure than this short visit with Dr. C. C. Miller.

P. B. McCABE,

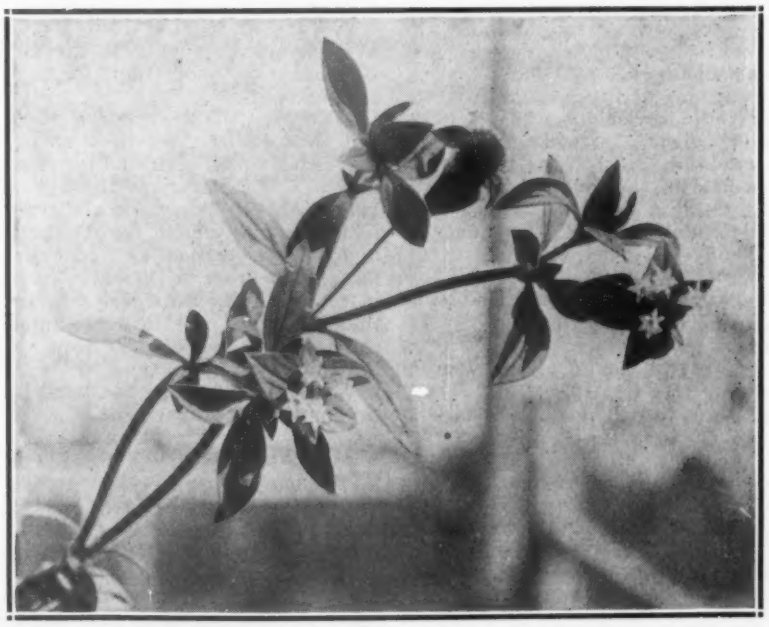
Elburn, Ill.

MALLOW AS A HONEY PLANT

From G. G. Aylmer, of Quebec, Canada, we received a specimen of the common mallow, with the statement that it is very attractive to his bees. The common mallow, also called Dutch cheese, doll cheese, fairy cheese, and sometimes cheeses (from the shape of the small seed pod), as well as blue mallow, is a widely distributed weed introduced from Europe and generally naturalized in this country. It grows commonly along railroads, in barn lots and waste places. It blooms through a long period, and at this writing (Oct. 27) is still in bloom here at Hamilton. The letter mentions the fact that it blooms there in September, and this year, because of the mild weather, into October. It is probable that the bees were attracted to it at a time when there was little else on which they could work. While bees work upon it to some extent, the writer regards it of little value as a source of nectar. If any beekeepers have found it otherwise we would be glad of the information.—F. C. P.

MORE ABOUT LAVENDER

On page 375 of our November issue is a short note concerning lavender, together with a picture of the plant in bloom. The plant is extensively cultivated in some countries for the oil which is derived from it. Von Mueller, in his book on "Extra Tropical Plants," which is published by the government at Melbourne, Australia, states that one species of lavender, **Lavandula Stoechas,** is one of the best plants to hold light, sandy soils, and it is also estimated that one acre of it will enable the bees to store a ton of the finest flavored honey every year. A plant which may become the source of a ton of honey per year from each acre is well worthy the attention of the beekeeper. Since lavender is cultivated for commercial purposes entirely aside from its honey, it might very profitably be tried out in this country.



Mexican clover covers the ground in Gulf Coast fields

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.
Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Illinois.

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All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. DADANT .....Editor

FRANK C. PELLETT .....Associate Editor

MAURICE G. DADANT .....Business Manager

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THE EDITOR'S VIEWPOINT

Dr. Miller

The following appreciations of Dr. Miller were received from Europe:

From Mr. Crepieux-Jamin, of Rouen, the man who was honored with the order of Leopold, by the King of Belgium, for having cared for 3,000 wounded Belgian soldiers:

"My condolence compliments to Mrs. Miller. Dr. Miller's death is to be regretted. Your father and he, those were two MEN."

From Mr. Ph. J. Baldensperger, of Nice, France:

"My cordial sympathy goes to the Miller family and to you for the loss of our beloved and venerable dean, the patriarch, Dr. C. C. Miller. The sympathy of the apiarian world must be but small relief for his people. Who will entertain us as positively and joyously as he did, on the ups and downs of beekeeping?"

From Mr. Leon Tombu, of Belgium:

"I was very sorry to learn of the death of the venerable master, who was Dr. Miller. It is not a sorrow for the American beekeepers alone, but for the beekeepers of the whole world as well. The American Bee Journal loses with him one of its best writers."

Meeting Changed.

The meeting of the Minnesota Beekeepers' Association has been changed from December 7-8 to Thursday and Friday, 9th and 10th. It will be held in the meeting rooms of the Hennepin County Medical Association, Donaldson Building, Seventh and Nicollet, Minneapolis.

American Honey Producers' Emblems

The American emblems to wear as rallying signs at conventions of beekeepers ordered to be struck at the Buffalo meeting last spring, are at last ready. We can furnish them of either gold or bronze, and either in pins or screw buttons. They represent a queen on a comb; they are of the size of a dime, very neat and pretty, and are warranted to wear for years without tarnishing. As a much larger number was ordered than at first intended, they are supplied more cheaply than formerly announced. Remit 50 cents for single emblem, to be delivered by mail, or 35 cents each in lots of 20, to be supplied at conventions.

Diseases of the Adult Bee

We are indebted to Mr. John Anderson, of Aberdeen, and A. H. Wood, for a clipping of the Aberdeen Free Press of November 2, indicating that the true cause of the Isle-of-Wight disease is a mite, which it is proposed to call "Tarsonemus Woodi, which enters a particular breathing tube of the bee, feeds on the bee's blood, blocks the air passage, and thus cuts off the supply of oxygen from certain muscles and nerve centers concerned with locomotion." We trust this may be correct and a solution of one of the most baffling diseases of the adult bees. In that case, the discoverers of this cause will have deserved great praise from the beekeepers, for it may lead to correct diagnosis of the cause of the so-called May disease, paralysis, vertigo, which have never been fully acounted for. Should this discovery be confirmed, we will give a history of it with credits to its author.

Appreciation of Dr. C. C. Miller

We are in receipt from Mr. Thos. W. Cowan, President of the British Beekeepers' Association, of the following resolution:

"The British Beekeepers' Association desire to record their sorrow at the news just received of the death of Dr. C. C. Miller, at the age of 89 years, who by his work and writings had done so much for beekeeping. and by his personality had endeared himself to those with whom he came in touch. They also desire to record their sense of the loss sustained by the world of beekeepers who valued his advice, and to extend to Mrs. Miller and family their deepest sympathy in their bereavement."

A Memorial Fund

The suggestion has been made on the part of several friends of Doctor C. C. Miller, that a fund should be raised by the beekeepers for the purpose of establishing a permanent memorial. There is some difference of opinion as to the form this memorial should take. We think that the establishment of a research scholarship in beekeeping in an agricultural collegt would be very appropriate. In case such a move is started, all the bee magazines should join together to raise it. We will be pleased to hear from our readers as to what they think of the plan.

Prayers to Stop Swarms

I have heard from many persons that there is a prayer which, when said directly ahead of a swarm of bees, will compel them to land at once. Please inform me if I can in any way get the words of this prayer.

Connecticut.

There has been at all times more or less belief in the efficacy of certain forms of prayer. We read lately that it was once the belief that a **printed copy** of a prayer to St. Margaret would cure pain, if applied on the seat of the trouble. We have looked for information, in several ancient works on prayers as applied to bees, and find the following:

According to Jules De Soignies, a Belgian author, through a popular belief in the Golden Hills of Burgundy and in other parts of France, the following prayer was recommended to stop swarms:

"Bees, the Lord has given you birth here and asks you to remain here." This was to be followed by making the sign of the cross.

In the Ardennes, they kept the swarms from flying away by planting a branch of consecrated boxwood in front of the hives on Palm Sunday.—(L'Abeille a Travers Les Ages).

According to Margaret Warner Morley (The Honey Makers, page 327), an exorcism was found in a Latin ecclesiastical work as follows: "I implore thee, mother of the bees, through God, the King of Heaven, and through the Redeemer, the Son of the Lord, that thou fliest not high, nor far, but that rather thou comest at once to a tree; there gather with all thy kind, or with thy companions. There have I prepared for thee a good hive, that there thou mayest labor in the name of the Father, the Son and the Holy Ghost. Amen."

Both of these authors also report that it was a common belief in Luxemburg that the Lord tried to restrain the honeybee from working on Sunday, and that the honeybee replied: "It is often rainy during the week, and if I do not work on Sunday I may not be able to supply wax for the altars." Whereupon the Lord punished the bees for their disregard of Sunday, by closing against them the corolla of the red clover, making it too deep for them to reach the base of the calyx.

First or primary swarms rarely fly away, as they emerge from the hive. They nearly always settle at least once, when they may be easily hived. So if our correspondent tries one of the above prayers upon a primary swarm, he will have the pleasure of seeing it succeed. But if he tries it upon an afterswarm, it may be quite a different thing. We would prefer to rely on a spray of water from a force pump.

Mrs. Miller Ill

A letter from Marengo brings the news that Mrs. Miller has been confined to her bed with illness most of the time since Dr. Miller's death. Mrs. Miller wishes to convey to the beekeepers generally her appreciation of the many kind letters received since the doctor passed away, and to thank them one and all, since it is impossible to reply to them directly.

The Quebec Apiary

Editor Vaillancourt, of L'Abeille, in Quebec, publishes Bulletin 62 of the Ministry of Agriculture of the Province of Quebec. It is an 88-page bulletin, supplying, in a condensed form, the most important requirements for successful beekeeping. In the matter of wintering, he recommends the "silo," and gives directions for building a silo. This method of wintering is certainly good for cold countries like the Province of Quebec. We have in our own United States localities where the silo would undoubtedly be equally successful.

An Opportunity for Breeding Experiments

The State Plant Board of Mississippi has recently made a survey of the plant and insect life on Cat Island, which is about eighteen miles off the coast from Gulfport. Prof. R. W. Harned, the State Entomologist, who has charge of the work, writes that no honeybees were found on the island. There were fourteen in the party, most of whom were collecting from early morning until late at night. Everyone had special instructions to be on the lookout for honeybees, and as not one was seen it is believed that no bees occur on the island. Prof. Harned is of the opinion that the flora is sufficient to sustain a number of colonies. In case any queen breeder wishes to secure a suitable place for breeding experiments, where the matings can be controlled, it is quite possible that arrangements can be made with the owners to lease a suitable site for this purpose.

Since the breeding of bees for the northern trade is coming to be quite an important industry in Mississippi we would like to see the experiment station, or similar institution, of that State establish a breeding station on the island. There are similar islands off the coast of other Gulf States which might be utilized in this manner. It would seem that any of the States where this branch of beekeeping is being developed might well afford to establish such a breeding station and undertake to solve some of the problems that confront the queen breeder.

Wintering Bees in Canada

We acknowledge receipt, from F. W. Sladen, Dominion Apiarist, at Ottawa, of an official Bulletin (No. 43) on wintering bees in Canada, in the French language "L'Hivernage des Abeilles au Canada; the English edition of the same to follow shortly.

Mr. Sladen puts in evidence the three requirements of good wintering, whether in Canada or elsewhere: Strong colonies, composed principally of young bees; plenty of healthy honey; protection against cold.

For strong colonies of young bees, Mr. Sladen believes in having a young queen that will lay freely eggs that will hatch in August and September. Even in our Middle States, we believe that September bees are best for winter. They have plenty of time to take their early flights before cold weather.

For healthy honey for winter, Mr. Sladen recommends white clover, alsike clover, and even buckwheat. But he condemns dandelion honey and hard maple honey because they "granulate in the combs." Aster honey "is harvested too late and does not sufficiently ripen" for good winter food in Canada. As a matter of course, he condemns all fruit juices and honeydew.

For protection he recommends the 4-colony winter case, but warns beekeepers against the "drifting of bees," to which we have always objected when colonies are shifted from one spot to another. For this purpose he advises to "bring the hives together gradually towards the end of summer, so as to be in about the same position that they will accupy in the winter case."

For cellar wintering he recommends a temperature of 45 to 50 degrees in a cellar "not too dry."

Beg Pardon

We may make mistakes in theory and pass them, but it will not do to make errors in facts. The editor made an incorrect statement, on page 226, concerning the music composed by Dr. Miller, and half a dozen people have written us to correct it. The following are the facts:

Dr. Miller wrote the music of "The Hum of the Bees in the Apple Tree Tops," "The Beekeepers' Reunion Song," "Dot Happy Beeman," "Beekeepers' Convention Song," and "Spring Time Joys." But Geo. W. York, is the composer of the music in "The Beekeeper's Lullaby" and "Buckwheat Cakes and Honey." The words of all these songs were by the late Eugene Secor. Mr. York published all the above some years ago, with one by himself and one by James Roat, in pamphlet form, under the title of "Songs of Beedom." A letter from Mr. York reveals the fact that he has a few dozen copies left.

Winter Protection

The information reached us lately, indirectly, that some beekeepers quote the Dadants as being opposed to heavily packed double-wall hives for winter. Not by any means. When the bees are packed in such a manner that the cold weather cannot reach them, they are in the very best condition for winter. Let me quote the last paragraph in the chapter on out-of-doors wintering in the "Dadant System of Beekeeping":

"If the packing of colonies, singly, in thick packing boxes, in a way that they could not feel the cold of winter, was not so expensive, it would be the ideal way of wintering bees, even in very cold regions. We have not adopted this method because of the great expense that it entails. Our method has been sufficient and although we have lost heavily in a few abnormal winters, we succeeded quite regularly. Our losses are not over 5 per cent, one year with another."

Winter management is mainly a matter of location. But beekeepers can never overdo the protection of their colonies.

Unsealed Honey for Winter Stores

Says the British Bee Journal: "Unsealed syrup, or honey, will do no harm to the bees **if it keeps sweet,** but during the damp weather of autumn and early winter unsealed stores take up moisture from the air and are then likely to ferment."

True, but even if they don't ferment, as in our cold climate, the increased moisture taken up as stated above produces a noxious effect upon the bees and leads to diarrhea. Better have all sealed stores, as much as possible.

To Kill Moths

Carbon disulphide, carbon bisulphide, carbon sulphide, according to the United States Dispensatory, are one and the same thing. It is a very volatile, highly inflammable substance, "prepared by the direct combination of carbon and sulphur at a moderate red heat." It should be low-priced, for it is manufactured on a large scale. The above-named book is authority for the statement that "in the works of Deiss, at Pantin, near Marseilles, France, 5,000 kilograms ((11,000 pounds) were turned out daily."

There is another preparation which is not inflammable, carbon tetrachloride, which is also an anesthetic and will kill moths and other insects by evaporation. It is made from carbon disulphide and dry chlorine.

The latter drug is the cheaper of the two, its cost being from 25 to 30 cents per pound, in small quantities, while the disulphide sells at 35 to 60 cents.

Wisconsin Horticulture and Bee Culture

The little monthly entitled "Wisconsin Horticulture," is worth reading. It always contains a lot of bee information. The October number has a beautiful front page cut.

Big Colonies

Lieut. C. W. Smart, in Australasian Beekeeper for August, 1920, reports that a colony which he built up "four stories high and which had brood from top to bottom, produced more honey than any other hive in the apiary." **Large hives.**

PREPARING COLONIES FOR SHIPMENT

By C. P. Dadant

A reader of the American Bee Journal asks for an editorial, giving our experience with shipping colonies of bees and asking at what time they had best be shipped.

Our personal experience extends over a long period, with shipments to all parts of the country, but we have rarely shipped carloads. The shipping of carloads made a great step towards perfect success when some practical man packed them in refrigerator cars.

Bees in colonies may be shipped at any time. The best time, however, is when the colonies are the lightest in both, or either, brood and honey. At such a time, spring of course, the danger of breakage and loss by smothering is at the minimum.

The amount of air to be supplied to each colony will depend very much upon the strength of the colony, in bees. We shipped hives of bees by express 500 miles or more, in cool weather, during the months of March and April, with no other ventilation than was afforded by the cracks in the joints of the entrance and cover, when they were closed. We do not believe in ever using a screen over the entrance, because that is the place through which the old bees are accustomed to pass in and out, and they worry and crowd each other more at that spot than in any other spot. The rare instances, in which we have seen the entrance closed with a screen, indicated that numerous bees die against that screen, and it becomes so clogged that it is of no benefit for air. A preferable way, when air is given, is over the top of the frames, at either end in cool weather, or over the entire hive body in warm weather.

A wooden frame, made of inch square lumber, and as long and as wide as the hive top, with a fly screen of the proper size nailed upon it, is fastened at the top of the brood chamber, right over the brood frames. Then another cleat, of the same thickness, is nailed on top of this, at each end only, and a light board is nailed across the top. This gives the bees an inch of room, above the frames, under the screen. It also supplies an inch of space, between the screen and the sheltering board. That board serves two purposes. It protects the hive, from the hive above it, when piled up. It also shelters the hive from the direct rays of the sun, in case the colony is left exposed to it, for a certain length of time. However, let us insist on the importance of avoiding exposing the hive to a strong light; much more important still is keeping it away from the sun. But in loading and unloading, it is next to impossible to always avoid the occasional exposure.

Bees may be shipped in very hot weather, if they are given plenty of air and are on old combs, with very little honey and but little young brood. Some people imagine that they must have water. That is a mistake, unless they have young brood. It is true that they will take water if given to them. But the experience of Harbison, who took bees from New York to California, by way of Panama, was exactly in line with the experience which we had at different times later. Bees that were supplied with water arrived in poorer condition, at destination, than those which were left without it. Watery stores, thin honey freshly harvested, are also less safe than very ripe honey or good syrup. The advantage of pouring water over the hives is in cooling them. If they are placed in refrigerator cars, or if they are transported in spring, during cool weather, water will prove more a detriment than a benefit.

If it is necessary to cite the experience of others, besides Harbison and ourselves, as to the superfluity of water in shipping cases, we will pick out, at random, the account of an experience. On pages 22-3 of the January number of Gleanings, 1920, T. Dwight Whitman gives his experience in the receiving of bees from long distances: "I have received bees in pound packages that had only candy feed, no water container, from California (he is in Washington) that came through in better condition than those having water. In fact, some of these packages having only candy in them came through in what I would call perfect condition, there being not over a dozen dead bees in a two-pound package."

If you ship bees, let there be no fresh honey in the hives, and as little sealed honey as is absolutely necessary for their safety. You must be the judge as to how much air they need. If the weather is very hot and the distance great, it may be best to have screens at the bottom as well as at the top of the brood chamber. A very populous colony may need an additional chamber of dry combs besides its own brood chamber. In cool weather, or in a well-managed refrigerator car, the average man would be astonished to ascertain how little ventilation they need. But it is better to err on the side of too much ventilation than too little.

Whether in a car, or on a truck, or on an ordinary hayrack, the hives should be placed in such a manner that they are well fastened down and will not shake. It is useless to add that hives are placed with the combs lengthwise in a railroad car and crosswise on a road truck, because of the directions from which the jars are produced in each case. But bees on old combs will stand a large amount of jarring, provided the combs are well fastened. The Hoffman frames, objectionable to so many in handling hives, are a benefit here. But loose hanging combs are readily fastened, by cleats at each end, if they are not sufficiently glued with propolis.

Hives with tops closed with moving screens for short trips in hot weather

WINTER APIARY IN MISSISSIPPI RIVER WOODS

By Florence L. Clark

Clayton is a village on the Mississippi, pocketed among high wooded hills. Stationmaster and assistant at the depot are Mr. and Mrs. Adams. He works one shift and she another. This is their occupation. Bees are their avocation, and for a number of years they have obtained profit and pleasure, in their leisure hours, keeping bees. They have about 200 hives. Part of them are kept in town, and

part in the woods on a 40-acre timber tract some distance from Clayton.

When it came time last fall to put away the bees for the winter, Mr. and Mrs. Adams were face to face with the problem of lack of cellar room. Only a little more than half of the hives could be kept in the cellar. It was then they decided to make "babes in the woods" of the rest of the bees. Cases large enough to hold six hives, with a space of 6 inches at the back and 4 inches in front were built and placed facing the east to afford protection from the northwest winds of winter. All around and among the cases were the trees to break the wind and afford some shelter, even though their branches were bare. The hives were put in the cases and the spaces at the back and front filled with leaves. On top a layer of leaves 18 inches thick was piled. Mrs. Adams, alone and unaided, gathered and carried 165 tubs full of leaves.

Having prepared the bees in this way to weather the snows and cold of an Iowa winter, Mr. and Mrs. Adams abandoned them entirely, and did not go near until about the middle of January. The photograph shows what greeted their vision as they plowed their way through the deep snows to their winter apiary in the woods.

So undisturbed were the bees in winter's snows that not even a dog track was to be seen. The snow was a foot or more deep on top of the cases and drifted up against the outer walls in a way that made it seem certain, so Mr. Adams said, the bees were as snug and warm as they would have been in the cellar, if not much more so.

Iowa.

SEEDS OF HONEY PLANTS FOR TRIAL

Through the kindness of a correspondent in China, we have received a few pounds of seed of two of the best honey plants of that far country. They are Chinese rape and Chinese broad bean. Both are said to be very good for the bees. The rape grows very much larger than the field rape grown in this country, sometimes as much as six feet high. We are putting up this seed in small packages and propose to send it to our readers without any charge. Our only stipulation is that it be given a fair chance to show what it will do and that the beekeepers receiving it report to us the result of their trial next fall. Since we only have a small quantity of this seed we cannot hope to supply all who would like to try it, but will supply all requests as long as the supply holds out. Only a few seeds can be sent to each person, but they should be sufficient to get a start in case the plants prove valuable.

We have also secured some of the early-blooming sweet clover seed which we propose to send out in similar manner. This is a biennial sweet clover which blooms about two weeks ahead of the usual white variety. We will send small packets of this seed also without charge to those who wish to give it a trial. A small quantity properly cared for will soon give the beekeeper a chance to introduce this early blooming variety into his neighborhood. If we can add two weeks to the length of the flow from sweet clover we will add greatly to the returns from the apiary in the sweet clover districts. Please remember that we have not tried any of these seeds as yet, but are offering them to our readers free because they are reported to be promising.

ECONOMIC ASPECTS OF APICULTURE

By E. R. Reppert, Entomologist, Extension Service, A. & M. College.

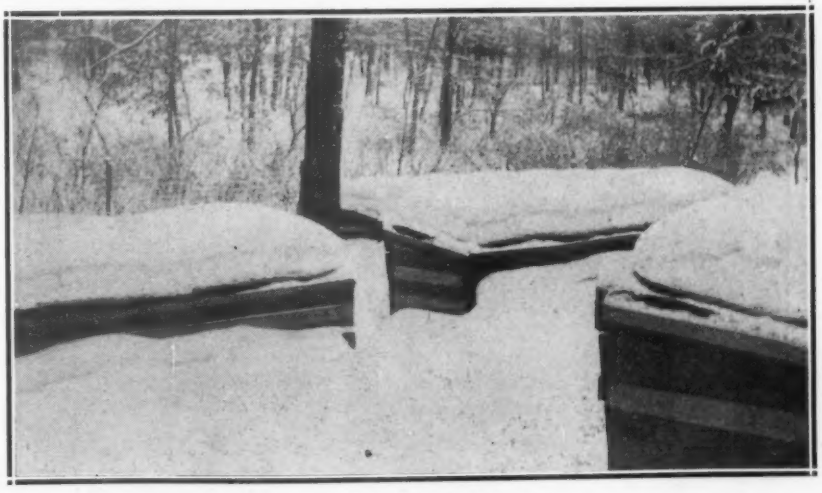
It is safe to say that for the last two years, and possibly for the last four years, no subject dealing with economic questions has been discussed in our country without reference to the European war. While the great conflict was being waged, our whole economic organization was disarranged, values were out of normal proportion, and prices were high. Now, although almost two years have passed since a wave of joy swept around the globe with the cessation of hostilities, the people of our country and of the whole earth still feel the galling burden of high prices, left them as a potent reminder of the period through which they have passed. Hence it is that, deplorable as it may seem when viewed sentimentally, we have come from necessity to look upon things from the standpoint of utility, and our field of vision is marked across with the dollar sign. Mere sentiment will not feed a hungry world, and things that were once done largely as a pleasure, or not at all, are now done as necessary to the world's sustenance, while new values have been attributed to products to which formerly little thought was given by the masses. Such a product is honey.

Honey is considered as a substitute for sugar. Yet with as much logic, and perhaps more, can sugar be called a substitute for honey. Both are consumed primarily for their pleasant sweet taste, both are valuable nutrients. But, except as we consider the sugar in various fruits and vegetables, honey was utilized first. (Of course, we are speaking of sugar here, as the manufactured article. Strictly speaking, honey itself is 75 per cent sugar, the remainder being mainly water.)

Some Ancient History

The writer was somewhat surprised to learn, by referring to an authority, that sugar was unknown in Europe 500 years ago, being introduced at that time from India as an incidental result of the Crusades, and that in the sixteenth century it cost $2.45 per pound, a consoling thought to keep in mind when the last month's grocery bill is presented. What then satisfied, during the centuries preceding, the sweet tooth of the civilized world exclusive of India and China, granting that the civilized world at that time had cut its sweet tooth? It could have been none other than honey or the juices of fruits. An instance is seriously stated of a sealed jar of honey recently taken from one of the pyramids of Egypt of as delectable flavor as when placed there five thousand years ago —it is supposed the party making the comparison assumed the quality of the first samples.

Jacob included honey in his offerings to his unknown son, Joseph, when he sent into Egypt for food for his starving people, three thousand years before the first sugar refinery was built. Cicero, effusing concerning the joys of farm life, along with the chickens and pigeons, the cows and pigs, the butter and eggs, mentions also the hard-working bee and the toothsome product of her industry. John the Baptist sustained himself on locusts and wild honey; obtained, the locust from the verdure of the plains, the honey from the caves of the bordering cliffs where innumerable swarms of wild bees



Buried deep beneath the snow

stored it. And Pliny included apiculture in his studies of nature.

Thus for ages honey had been the satisfying sweet. During the latter centuries it was a luxury and the consuming public had demanded only a limited amount. With the last few years, as the price of sugar has advanced, the world has come to look upon honey increasingly as a necessity, committees have impressed upon us the need of utilizing to the fullest extent this undeveloped resource, and those who have been in best position to do so have increased their efforts to accomplish this end.

And how undeveloped the resource! One hundred million people as industrious and intelligent as any others that walk the earth; over 3,600,000 square miles of as rich soil as ever grew a shrub, blessed throughout the greater part of its extent with a wide variety of trees and plants that give in their proper season an abundance of nectar. And yet, only enough honey is produced to allow a bare two pounds annually to each of its inhabitants; colonies sufficient in number to harvest but a small part of the nectar secreted by the flowers.

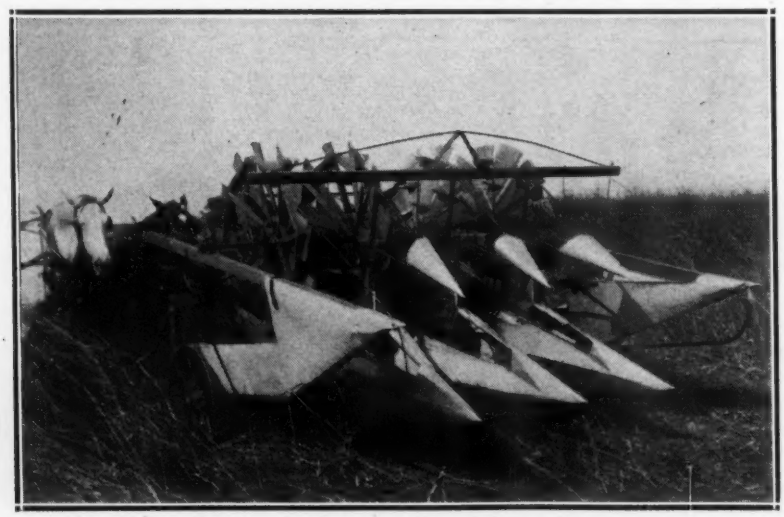
Probably less than one million of our inhabitants, only one per cent, are engaged in beekeeping, and but a small per cent of these own colonies that produce commercial quantities. Fifty to eighty per cent of the nectar of the United States is probably lost because of an insufficient number of bees, and in our own State of Texas, it is said that twenty times the present harvest of honey could be gathered if there were sufficient colonies rightly placed. In the face of the extreme shortage of sugar in the past, it is little short of criminal on the part of the American people that a larger amount of honey is not produced, and their responsibility is heightened by the fact that comparatively little trouble or expense is necessary to put it on the market. Nectar is a natural product.

Comparisons

There is an increasing tendency, in these days of high cost of living, to draw comparisons between different articles of food, taking into consideration their prices and their relative nutritive value. Merely as a carbohydrate, the value of honey is one-fifth less than that of sugar, the difference being due to approximately twenty per cent of water in the honey. But its energy-producing value is 1485 calories per pound, being ahead of all other foods in this respect, except dates, and far exceeding that of meat, eggs, bread, milk or vegetables. Taking average prices into consideration, honey is a more economical food than pears, oranges, figs, bananas, strawberries, and grapes, which are in the same class of energy-producers. It is also more economical as an energy producer, than celery, tomatoes, canned corn, and all the meats, with the possible exception of pork chops. On the other hand, it is less economical than bread, cereals, potatoes, baked beans and apples.

There remains yet one phase of the subject to be touched upon—namely, methods and equipment, and a reference to bee diseases. To properly solve the problems implied will necessitate an educational campaign that will reach to all sections and that will make the individual realize that it is to his advantage, as well as to that of others, that he should practice the latest and most improved methods, to secure for himself the greatest income and for others the highest degree of safety, and reap in the fullest measure the harvest bountifully supplied by Nature. It is estimated that previous to last season, year in and year out, the gum or box-hive, which does not allow bee or comb manipulation, produced annually, in Texas, an average surplus of three pounds, while hives with movable frames, properly handled, produced an average surplus of forty-five pounds, and last year the latter class produced an average of fifty-seven pounds. Is it any wonder that in east Texas, in which are perhaps some of the richest nectar-producing sections of the whole State, but where gums or box-hives are the rule, beekeeping has not progressed and become the industry that it should? Is it any wonder that, with bee disease and moths rampant, encouraged as they are by these conditions, the beekeeper with modern methods has shunned this rich field, and left it undeveloped, and worse, as a menace to the surrounding territory and the State at large? These are matters that must be considered and made subjects of education and publicity campaigns, that beekeeping shall come into its own and this source of wealth develop to its fullest extent.

Texas.



Front view of the Leudke sweet clover harvester

HARVESTING SWEET CLOVER SEED

Sweet clover is the subject of animated discussion among the farmers, on the street, at institutes, at fairs and wherever the tillers of the soil chance to congregate. It is no longer feared as a weed, but more and more its value as a soil builder is being realized. This augurs well for the beekeepers, and everything which can be done to extend the popularity of the plant among the farmers will improve the pasture of the beekeepers who live within reach of their fields.

Sweet clover is a vigorous plant, and produces seed in abundance. However, it is a hard job to harvest the seed crop after it is grown, and more than one farmer has been disgusted with the whole proposition when he came to gather his crop. The writer has had experience in a limited way with sweet clover and appreciates the difficulty. If cut with a mower and raked into windrows, a large part of the seed will be scattered. The binder is not well suited to the work, nor is the ordinary threshing machine suited to threshing the seed after the plants have been cut. The progress of sweet clover has been greatly handicapped by the lack of suitable machinery for handling it. There have been numerous makeshifts recommended, but none of them are entirely satisfactory. The writer and his boys threshed about a thousand pounds of seed by beating it out by hand on a large canvas. It is needless to say that one could not expect to grow a hundred acres of the crop to be handled in this way.

For several months we have been hearing about a harvester made especially to gather the sweet clover seed from the standing stalks. The machine was said to thresh the seed as it went, thus avoiding the necessity of another operation. Instead of having to cut the crop with a mower, haul it to the yard and stack it, and then bring in a threshing machine to finish the job, one trip through the field was said to be sufficient to finish the whole operation, the seed being sacked from the machine.

So interesting did this sound that, when word reached the office that a machine was at work within thirty-five miles, three members of the staff got into an auto and away we went

The sweet clover harvester gathers the seed and leaves the straw on the land

to see for ourselves whether there was any easier way to harvest sweet clover seed than to beat it out with a fork over a canvas cloth. It was in October, too late for the seed crop to be at its best, as much of it had already shattered off. The machine was at work on the farm of the Rice Brothers, near Discus, Ill., and sure enough, it was getting the seed as it went. There was forty acres in the field and it was a wilderness of sweet clover, much higher than a man's head and so thick that one could hardly walk through it. Instead of the horses being hitched ahead of the machine and pulling it, like a self-binder, they were hitched behind, and pushed it. It was, in fact, a case of "the cart before the horse." The first picture will give a good idea of the appearance of the machine as it came to the end of the row.

Four horses are used in reverse position; two on each side of the tongue, so, although they pull the machine, it really precedes them. Two wheels carry the machine while the end of the tongue is supported by a caster wheel to facilitate turning at the corners. A chain sprocket on the large axle drives an overhead shaft bearing four large paddle or threshing wheels at a high speed. Parting guides tend to compact the stalks as they are drawn through a series of fin-shaped paddles, some rigid, others mounted on the sides of the threshing wheels. These notched paddles mesh loosely. When the seed is ripe the stalks are stiff, and being drawn through are bent into a series of angles which hold while the seed is beaten off. A draft of air drops the seed into conveyors that carry it back to a bin, where it is screened and sacked.

Two men and four horses operate the outfit. One man drives the team and the other tends to the screening and sacking.

The machine is easily raised or lowered at will and takes a swath 9 feet wide. It runs easier and faster than a binder, and when the field is finished both harvesting and threshing are done.

The machine is the invention of G. P. Leudke, of Springfield, Ill., who has only placed a few of them on the market as yet. A number of minor details present themselves for improvement, but in the main he seems to have hit upon a really practical plan of harvesting sweet clover. An economical method of harvesting the seed seems to be all that remains in the way of the rapid extension of the acreage seeded to the best honey-producing plant known to the Middle West. After riding across the field on top of the machine and watching the seed drop into the troughs for its retention, the writer was convinced that the trick is done and at last a practical harvester is here. Success to Mr. Luedke, the well-wishing of all beekeepers are with him.

"SELFISHNESS"

By E. G. LeStourgeon

Ever since men organized themselves to build the tower of Babel, men have organized to protect their assumed rights or trade interests. Nations, empires, ententes, labor unions, churches, lodges, farmers' and even beekeepers' organizations are founded on this same desire. Into each enters the idea of selfishness, and the per cent of selfishness has generally governed the length of life of the organization. The big **I** and the little **you** of our modern slang, because I belong and you do not, is responsible for the world-wide unrest today.

The ideal of the narrow, selfish organization is now fighting its last stand. No group can exist apart, and yet expect to live from the common source.

From the organization of the first beekeepers' association there has been a line of this narrow self-interest manifest. To be a member one must not only be a beekeeper, but also one that believes as we believe. So strong was this sentiment that almost all of the older organizations became mutual admiration societies, took in no new members and died with the last patriarch.

Very naturally these societies did little but defend the system of beekeeping advocated by its members. Their discussions were mostly on theoretical subjects and were settled by debate rather than experiment.

While the old associations were dogmatically doing their best, a new race of beekeepers was coming into existence. In favored sections men were building apiaries that numbered in hundreds instead of tens. These men were devoting their whole time to beekeeping and had to make it pay. They cared little for theory and developed practices of their own. Their problems were disease, transportation, markets and supplies. Consequently there arose a second set of beekeepers' associations. These men were forced to band themselves together for common protection. To them the object of the association meant bread and butter, dollars and cents, not pleasure. By associating they could put on disease control measures; they could buy supplies in car lots; they could sell direct to the wholesale dealer; and they could get hearings from the Railroad Commission relative to freight rates.

But even these groups were too

Side view of harvester, showing how horses are hitched

narrow. Each group wanted to be the favored one, each wanted to dominate the market, and be favored in the buying of supplies. A few years of this kind of competition convinced the managers of such associations that even large State or regional associations must either be united or have some understanding as to their common interests.

Growing up along with the bee industry were certain other industries which were wholly or partially dependent upon the beekeepers. Manufacturers of bee fixtures, comb-foundation and publishers of bee papers were entirely dependent on the beemen, and those of honey containers partially so. These men, whose living depended just as much upon the bee as that of the bees' owner, were not included within those asociations. At the same time the transportation of bee fixtures and products became great enough to attract the express and railway companies, and likewise many other firms had more or less interest in beekeeping.

This multiplicity of interests, clash of activities and strife for supremacy, resulted in the formation of the American Honey Producers' League. If this succeeds, its component parts will have to give up the selfish idea of rushing honey to market to get a high price and spoil future sales. Instead of glutting the market, they must help create a market so that not only they, but other men, may sell. They must remember that manufacturers, printers, transportation agencies and even schools are vitally interested in bees, and where such parties desire, bust be admitted to the League. It is far easier to gain the desired point by a co-operation of allied interests than to gain the same by sheer force of the dominant party.

A NOTABLE BUILDING

We are pleased to picture in this issue the new Apicultural building at the Ontario Agricultural College. It is of more than passing interest, because it is the first building of its kind to be erected especially for beekeeping at an agricultural college.

A small frame building was erected for the beekeeping work at the Massachusetts College of Agriculture a few years ago, but it was not in the same class with this, which is a fully equipped college building.

We congratulate the beekeepers of Ontario upon the fact that their college of agriculture is the first to recognize beekeeping of sufficient importance to justify a really creditable building. We congratulate Prof. F. E. Millen upon being the first teacher of beekeeping to attain the rank of full professor with such a fine structure built for his exclusive use and that of his staff. We congratulate former Prof. Morley Pettit as founder of the beekeeping department of the Ontario College as being the first to establish a course in beekeeping which has grown to such an extent as to occupy such a building.

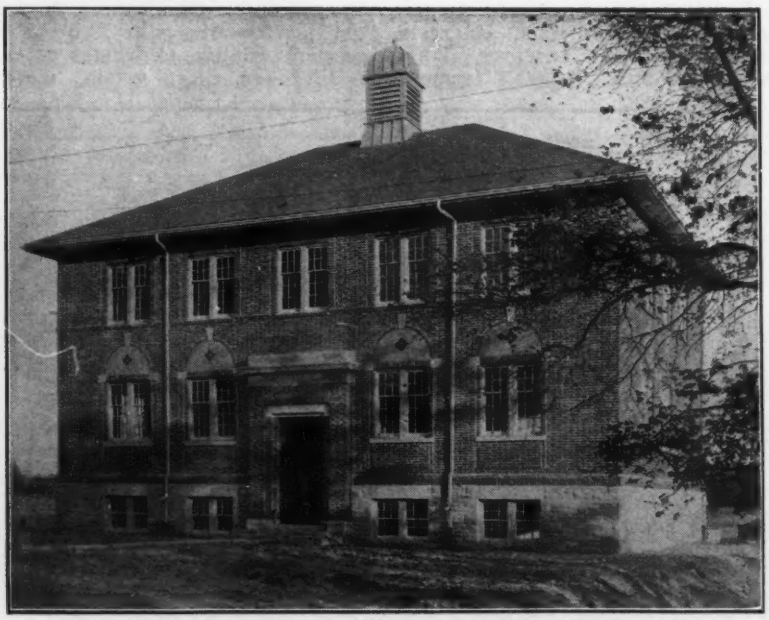
We feel that the dedication of this building by the Ontario beekeepers at their convention in December will mark a new era in the development of the industry. It is so very recently that beekeeping has received serious attention at any of the agricultural schools, that it is a matter of surprise that a college should erect a building, modern in every respect, for the exclusive use of the beekeeping department. Minnesota has a building at its University for beekeeping, but it was built for another purpose and given over to the beekeepers when the other department needed larger quarters. The Ontario building is a new and fireproof structure, built especially for the beekeeping work.

The building is of red tapestry brick, with oak trimming; iron staircases, finished with mastic, and with fire escapes at the rear. On the top floor is a lecture room 55x40 feet, and seats to hold 250 students. The lecture room is fitted with lantern, enclosed blinds and sliding blackboard.

On the main floor there are offices, reading room, small lecture room, laboratory and steel vault set in concrete for the preservation of records. On the basement floor there is a wax room, a honey room, a stock room, a bench room and a bee cellar. The bee cellar is finished with walls 18 inches thick, waterproofed inside and out, and has a false ceiling with ventilating system. Inside the concrete walls it is lined with matched lumber, covered with two thicknesses of insulating paper and two-inch cork boards.

The building is fitted with steam, hot and cold water, and gas. It is also provided with dark room and elevator. From the above description it will be seen that the beekeeping department at the Ontario College has received everything in the way of fittings and equipment that is provided for any other department.

We have pointed with pride to Minnesota as the first to establish a beekeeping course with the rank of a department on this side of the line. Let us hope that it won't be long until all the colleges will not only have beekeeping courses, but a full staff of instructors and research men, housed in such buildings as Millen and his staff now occupy.



New bee building at Guelph

HONEY FROM PRODUCER TO CONSUMER

By Arthur C. Miller

Can you sell honey as well as produce it? Can you produce a good article, and do you really know a good article? You say it tastes good, looks good; but is it good? All too often it does not suit the majority of the consumers, but why?

I have not sold thousands of tons, but I have sold many tons, many of my own production and many purchased, and I early found that what I liked was not always what the public liked. I tried putting up different kinds, properly designated, and at once found myself in a sea of trouble. It was not possible to keep track of what a customer had previously had, and if they did not get the same as they had before, there was remonstrance, changing or stopping.

Then I undertook blending. Simply said, but not simply done. It not only called for a keen sense of taste and a discerning palate, but it called for a community palate. Several promising blends were made and distributed freely among all manner of people. The blend which met with the approval of the widest variety of folks was adopted and the others were abandoned. The kinds and proportions used in the blend were carefully recorded and closely adhered to. Sometimes one or more sort of honey were not to be had, and then there was a search to find others that would as nearly as possible match those previously used. It was no easy task, and often the price of

a desirable sort was such as to seriously shave the profit. But if one is selling honey in a retail way or bottling it for a retail trade one must keep up the uniformity even if at a temporary shrinking of profit. Some of the big bottlers have learned this, while others have not.

And that brings us to bottles and bottling, a branch of the business which adds materially to the cost of the product and which the consumer has to pay. When the price is high, the consumer buys reluctantly, uses sparingly and the smaller the package, the greater the evil.

I am beginning to believe that the worst misfortune that has come to the retailing honey producer is the small bottle, say one pound or less. It sounds good to hear that the honey is bringing 40c to 60c per pound bottle. But it is not good. A little honey is bought once or twice by many people, and then they stop and turn to some cheaper sweet and seldom or never go back to honey. The claim that many people are getting a taste of honey who never had it before is true as far as it goes. People who have never eaten honey seldom buy it. Let many such persons have a free sample and they will buy it if it is within their means, but 50c honey is not within the means of many people. I know, because I have stood in stores for hours and listened and quizzed.

From some experiences of my own and of others I have come to the conclusion that a vastly greater amount of honey can be sold if put out in large packages, say one to five-gallon cans. Many a honey lover will readily buy a 60-pound can at 20c to 25c a pound, plus transportation, and then use it freely, but that same person will hesitate long before buying anywhere near 60 pounds in pound bottles. I know of one producer and dealer who sells hundreds of 60-pound cans directly to consumers, often shipping the cans hundreds of miles, and the same customers order year after year. Do you think that man would for an instant consider bottling his honey for the sake of the slight advance in price? Not much he wouldn't.

Then there is the small producer who has a few hundred or a couple of thousand pounds to sell. Invariably he turns to the pound bottle, more's the pity. And these fellows are seldom good merchants. While motoring through the country I have found many wayside stands selling "honey." It makes one shudder to think what some of the "stuff" offered will do to the honey trade. Sometimes very dark, oft ill-flavored, more or less specks and dirt and foam, poor labels or none at all, sticky jars, and to cap the climax, charging more for it than a fancy article costs in city stores with free delivery and goods charged. And not infrequently those roadside stands are anything but attractive, oft covered with dust, and perhaps so placed that there is small chance for a would-be purchaser to stop his car without impeding traffic or necessitating the crossing of the highway through a stream of autos to get to the stand. Pity that the roadside merchants cannot travel and see themselves as others see them.

But honey, particularly comb honey, does not lend itself to the common form of roadside merchandising. First, even in the best of stands, the pound jar should be abandoned and nothing less than a quart jar used, and gallon cans should be carried. If a customer wants to sample it, it is easily done from a jar kept for the purpose, a little of the honey being poured onto a slightly salted cracker. This system works very profitably, altogether too profitably ofttimes, because the proprietor is cleaned out of honey long before the roadside selling season is over.

Quality, uniformity and cleanliness are indispensable, and large packages are the most profitable, both immediately and for continued trade.

I spoke of poor labels. Some are atrocious. Many of the stock sorts offered by sundry concerns may be good as samples of types, borders and papers, but they do not add to the good appearance of the honey. Do not use labels with many colored inks or papers. Golds and golden yellows, if used sparingly, make good backgrounds, and black or golden brown for the lettering. Labels should be proportioned to the size of the package they are to be used on.

Push the sale of large packages at reasonable prices.

Rhode Island.

MANAGEMENT TO SECURE THE BIGGEST CROP

By Frank Coverdale

In treating this subject, many details must be taken into consideration, such as location, strain of bees, management, kind of hives, supers and method of wintering. Getting all colonies strong ahead of the honey flow to be ready for the harvest, rather than when the harvest is over, is the test of good beekeeping. Bees at the close of the harvest too often are only boarders, who may die off before the late flow.

I have found that when a colony is given an abundance of room to enlarge the brood nest before the harvest is ready, followed by reducing the breeding area when the nectar begins coming in freely, so as not to allow more breeding room than is necessary to maintain the colony, I secure best results. With a hive of limited capacity the beekeeper can control things to his liking. Two 8-frame bodies make a brood chamber which is too large, while an 8-frame body placed underneath a half-depth set of combs will make a brood chamber which will provide the average queen an abundance of room. If these shallow supers are stored away with sufficient honey, they will provide stores and breeding room to build the colony to full capacity for the clover harvest. When the flow begins the excluder should be placed above the hive-body and the shallow super placed over it to receive the honey. If the beekeeper runs for comb honey he can set two of these shallow supers of brood on a bottom board beside the parent colonies, moving them occasionally when the bees begin working from them. They can finally be doubled up in piles of 8 or 9 of these shallow supers, leaving a queen in each. As the remaining brood emerges, the combs will be filled with honey in case of a good flow. If desired, all the bees can be jounced out, paying no attention to the young queens, a method which I have practiced for years. For the breeding period preceding the heartsease flow, I have found an 8-frame hive to be sufficient for the needs of any queens which I have ever had. Feeding must be resorted to to induce the queens to fill even that space

Morley Pettit, founder of the beekeeping department at Ontario College of Agriculture, and F. Eric Millen, present apiarist, in a Pettit outyard at Georgetown.

at this season, but it is profitable in a location like mine. Of late, however, sweet clover is serving this purpose, though even with sweet clover there seems to be no need for more than 8 frames of breeding room. The queens do not lay under any conditions at that season like they do in May and June.

Where the queen is given two 8-frame bodies for breeding during the entire season and sections placed over the two bodies, the result will make the comb-honey producer sick. Such colonies will swarm as much as where only one body is occupied by the queen. By dividing these two bodies when the flow begins and placing each one beneath a body of empty combs or foundation, with an excluder between, provides plenty of room and greatly retards swarming. The point I wish to bring out is, that in order to secure the most honey, there must not be a great mass of brood emerging when the flow is nearing its close. These late bees come on just in time to be consumers, and are produced at heavy cost in honey and care of nurses. When the honey consumed, together with that used to develop them are counted, surplus bees at that season count heavily on the crop finally secured. This will be readily apparent to the beekeeper who has noticed how rapidly the stores diminish when brood rearing is at its height in spring. The past season, in my yard, colonies kept with two full stories of brood rearing room, throughout the season produced fully one-third less surplus of extracted honey. The beekeeper with thousands of colonies may think that he cannot bother with so many details, but the man with two or three hundred colonies will find it a paying manipulation. Where nectar is available all season the bees should be kept strong all season, but it is poor economy to rear bees at a season when they cannot add to the production of the hive. Honey used to stimulate breeding to gather a harvest can be used to great profit for the beekeeper.

Iowa.

(I cannot agree with Mr. Coverdale that an 8-frame story-and-a-half hive is sufficient to provide breeding room for the average queen. I used 8-frame hives for several years, and later discarded them for 10-frame hives. I was not satisfied with less than two 10-frame bodies of brood and honey at the close of fruit bloom. There was usually 14 to 16 frames of brood. After providing storage for honey and pollen, the story-and-a-half 8-frame hive leaves only two-thirds as much breeding space. I found that the bees in 10-frame hives in the same apiary and under the same Iowa conditions in 10-frame hives would fill as many 10-frame supers as those in 8-frame hives would fill 8-frame supers. In time I discovered that even the 10-frame hive was too small for best results in my location, where white clover furnished the surplus and where the season was short. Mr. Coverdale's point of getting the young bees ahead of the flow, rather than behind it, is fundamental to successful beekeeping. With the larger hives I found much less manipulation necessary to secure this result.—F. C. P.)

A PREACHER BEEKEEPER

By C. E. Rogers

What have bees got to do with Christianity?

The Rev. Edward V. Gardner, pastor of the Eureka, Kans., Congregational church, finds a close connection. His knowledge of bees helps him to win souls. The Rev. Mr. Gardner is Deputy State Bee Inspector. But in addition to inspecting bees he keeps a quantity of supplies in a commodious shop. Every year sees a few more Gardner bee converts in the neighborhood of Eureka.

"Bees are my graft," he said not long ago. "I cash in by the confidence I gain among my rural congregation. A farmer has no respect for a preacher who doesn't know something about farming. A good many members of my congregation become interested in bees before Christianity. It's a fair graft."

In addition to getting converts, Mr. Gardner's bees provide him three other desirable, if not necessary, things—exercise, recreation and honey.

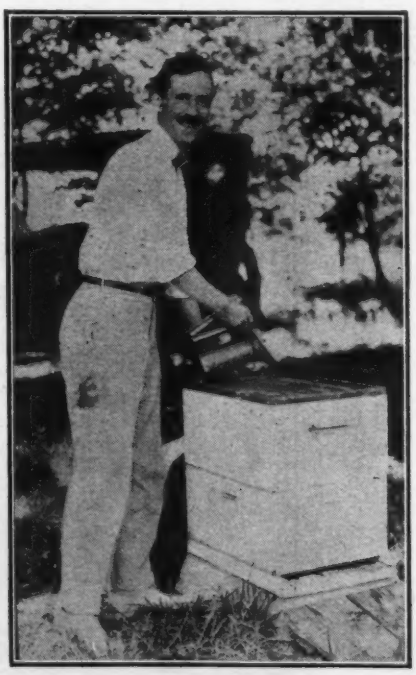
Manhattan, Kans.

THE CENTRAL PLANT AGAIN

An Illinois reader writes to express appreciation of the article on the Pettit central plant in the September. He asks for more details of floor arrangement, bottling equipment, piping to tanks, etc. His letter was referred to Mr. Pettit, who replies as follows:

Georgetown, Ont., Sept. 14, 1920.

We are more enthusiastic about the central plant every year. But, unfortunately, when we built we could not "think big enough," and are very cramped for space. Instead of 25x40 feet the building should be at least 30x80 feet. I mean for real comfort in the management of five or six hundred colonies. Let the prospective builder count on an extracting room large enough to hold at least two-thirds of his crop in supers. Because, when you start taking off and the bees are beginning to get a little dark stuff you do not want to take time to extract till you have the white honey all safely under cover. Then if the extracting room can be reserved for one purpose only the empty combs can be stored there until needed again. To be quite generous with space this room should accommodate all of the supers—for six hundred colonies, at least two thousand 10-L—besides the extracting machinery.



Edward V. Gardner, the beekeeping shepherd of a Kansas flock.

The honey room also wants ample storage space. We have twelve tanks like the ones shown on page 304. We fill two in a day and their total capacity is about thirty thousand pounds. By the time they are all filled some one generally starts filling out into selling packages. The honey all goes into tin where it is sold in the granulated form, so there is no answer to your correspondent's question about bottling arrangements. The tank-benches are three feet high, allowing the filling from tanks to be done in a comfortable position. Windows all along the wall give light and cheer, and high ceilings give airy comfort to the beekeeper, who is naturally a creature of the great outdoors. By rights the tank room should not need to be cluttered with honey in crates. This should be piled in a shipping room nearest the garage.

The garage is 30 feet long, rather cramped for the two trucks we use now. The stairway goes up from it. Two feet is plenty width for this as very little is carried up it. In the extracting room the extractor is over by the window, with plenty of light and air. The pump is a three-quarter inch rotary, and the honey pipe is galvanized iron one inch in diameter. It goes up beside the window to the ceiling, across through the partition, over the door, and ends in a "tee" just inside the honey room. On one end of the "tee" is a cap and on the other end a rubber hose reaching to the bottom of whatever tank in that end of the room is being filled. Rubber hose connects the pump with the extractor and also with the metal stand-pipe. Steam from the boiler is connected to the melter by a pipe running to the ceiling and along to a point directly above the melter. Rubber hose leads it down to the melter, which is piped for the two knives as well as itself. The boiler is heated by a gasoline stove, which also warms up the honey room and assists the clarifying of the honey. There is no stove in the extracting room, and before another year we hope to banish the engine as well.

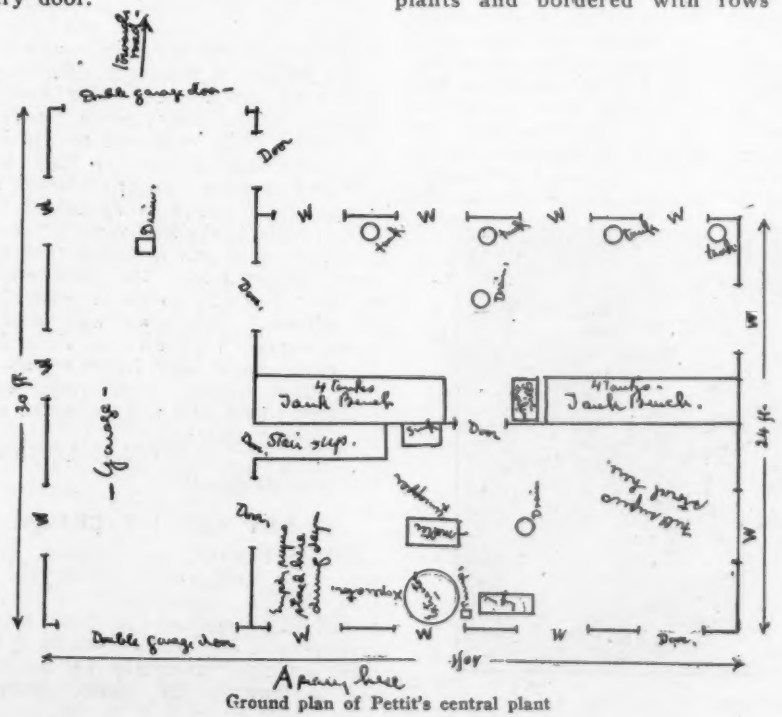
Upstairs the plan is similar. The carpenter shop is over the extracting room and the office is over that end of the garage. Both have a fine view of the apiary and get lots of sunshine for the early spring days, when most of our shop work is done. The other longitudinal half of the building is on the cold side during that period, and is used largely for storage of new material to be made up. It has a large pair of trap doors over the garage, where goods are handed up or down from the truck. For heavy boxes a pulley hoist is used. Both rooms are fitted with square box cupboards between the windows. These have heavy plank tops and are built for work benches as well as storage. One man can work comfortably on each. Before this appears in print we hope to have the whole building well equipped with electric lights for the dark mornings and afternoons which are coming all too rapidly.

The prospective builder should consider very carefully what his space requirements are going to be. Where there is a building at each outyard it is hard to realize what total capacity is available. Just total up and then remember that all that space must be supplied by the central plant. To use an old piece of advice, calculate how much room you need and then double that and you may have nearly enough. Especially where much hired help is used "a place for everything" is very important. "Things of a kind together" is another way we have of expressing it. For instance, the queen excluders are all piled in one place. When they all go out and are in use that place should be vacant and remain so until they come back. Then the helper with but a dim idea of order has less excuse for leaving some in every room in the building and the rest piled up around the apiary door.

Special rooms for each branch of the inside work are very helpful. Then the machinery and supplies can be left in order for conveniently taking up that work when the time comes. In addition to the rooms we have, I would like a room especially for rendering wax, and another for making feed. Our honey room is just large enough for a tank room. There should be another room quite as large for storage of the crated honey. This would be the shipping room and have a desk with shipping tags, stencils, etc. These at present are kept very comfortably in the office. We find it an advantage to buy tins, sugar for feed, and other supplies months in advance. They might well be stored in the rooms where they are to be used.

An old barn, which we found on the place, has been pressed into service for such storage and for wintering material—an item which has not been previously mentioned.

MORLEY PETTIT.



Ground plan of Pettit's central plant

THE HONEYBEE IN RUSSIA

While the human insect is transforming Russia into a large plunder field, giving up that rich country to famine, and while the bolchevik foulbrood destroys the most prosperous colonies, let us examine what the real honeybees were and are doing; those little monarchico-democrats who put in practice so nicely the dream which has hatched in the heart of the Russian peasant—A republic with a czar.

If there is a country which may be called the paradise of honeybees, it is certainly Russia, that of the Center and of the South, of course.

First, it is the country of basswood, of vast forests with powerful vegetation, of blooming plains, of numerous streams, whose capricious meanders water fat prairie covered with honey plants and bordered with rows of willows, whose golden and silvery catkins full of pollen announce to the bees the arrival of spring.

But while nature, in Russia, generously gives to bees what they need, the orthodox religion of that country needs the bee for the production of beeswax, which is used in the manufacture of wax candles, which are of constant use in the practice of the cult. So the little intermediary between nature and man, for the sustaining of life, becomes also a link between man and his Maker, for the needs of the soul. Whether there is a favor to ask, a sorrow to calm, a memory to honor, a festival to celebrate, baptism, communion, marriage or burial, the beeswax is transformed into a little sweet-smelling flame, burning before the altars to accomplish the mission of peace and hope. It is therefore natural that bees should secure, in Russia, the protection of the Church and the good will of the inhabitants.

Since the Church needs the bees, it sustains their interests by stimulating the cultivation of rape and buckwheat. Rape serves to manufacture the vegetable oil used in the cooking of vegetables during the days of abstinence and of Lent. Buckwheat supplies the meal used in the preparation of the cakes which inaugurate the end of the fasting. Both of these plants produce large stores for the active pilferers. So a close relation unites the bees to the Church, which carefully protects those little sisters of charity whose life is devoted to celibacy and who work incessantly anl lose their life, sometimes, in the defence of their home. It is therefore quite natural that each convent should possess an apiary, managed by a monk who fulfills this duty as a sacerdotal office. By destroying religion and abolishing the traditions of the Greek Church, the bolchevist has done a great damage to the bees.

But if each convent has an apiary, each village has or had one, or more, great domain where could be found an apiary installation where the latest methods were practiced. It is easy to imagine what has been the fate of those fine apiaries, in the universal plundering. The country people, seeking personal gain, divided the colonies among themselves and, in their ignorance, often allowed the colonies to perish. So the bees also have been victims of the revolution.

In order to safeguard them against dust and bad odors, the bees, in Russia, are nearly always located at some distance from the cities and villages. They place them often in open forest, in clearings made for the purpose, in the quiet and peace which they enjoy. Either the monk or the peasant, as the case may be, lives by the apiary, and if the bees are wintered there, he spends the whole year near them.

As to the kinds of hives used, they are not very varied. It is first the old national hive, made of a hollow basswood trunk standing on end. The weather, which gives to wood the color of stone, causes these hives to resemble monuments and likens the

apiary to a celtic graveyard, of which the monk might be considered the guardian Druid, accomplishing the rites of his faith. I remember that one day, while on a botanical excursion, I found myself suddenly in the midst of the forest, at one of these apiaries belonging to the convent of a small district of Kazan. I thought myself suddenly transported, twenty centuries back, to the celtic epoch.

As might be expected, these primitive hives are steadily giving way to better hives, especially the Dadant hive, and in less number, the De Layens hive. As a rule each apiary is placed under the protection of some saint, whose image is fixed above the gate of the enclosure, or sometimes on a post. Often they place a small "icon" or holy picture, under the roof of a hive which needs particular attention.

While visiting a renowned apiary once, I saw at the gate of the enclosure, which was very low so as not interfere with the flight of the bees, a pretty little structure of brick in the shape of a chapel, which contained an image of St. Serge, protected with a pane of glass. From this miniature building a streamlet of water was running upon a slanting board in which gradins had been chiseled, to spread the water upon the width of it. It was the watering place of the bees, and I recognized that this was much more pleasing to them than the long troughs upon which straws are laid. Was it an invention devised by the saint himself, or only by his deacon who cared for the apiary? Did he thus find out the secret of having the greatest possible number of his bees working under the eyes of their patron saint?

This apiary was composed of about 100 colonies, with movable frames. There was active work in that enclosure. Overhead, on the basswood trees, the bees were very busy; below, near the ground, they passed in quick flight, bolting out towards the woods, the fields, the gardens, and coming back swiftly. Woe to the intruder who got in their way. Several times, before reaching the pretty little house of the apiarist, I had smarting testimonials of their welcome.

One day I was complaining of the angry disposition of the Russian bees. An apiarist answered with conviction: "Russian bees are brave, but if you fear their stings, go to the hives that have Italian bees. Those are mild, with the imprint of the effeminate civilization of the Occident?" It is a fact that the temper of the Italian bees, which I thought cross in Switzerland, was angelic as compared to the temper of Russian bees.

But let us return to that apiary, with its little chapel, its waterfall, its active work and its deacon, who was lying in the hallway of his house on a bundle of dry grass when I knocked at the door.

"Eh! Brother, wake up. I come to see your apiary. Will you let me rest a moment here? It is so hot!" "Will you have something to drink?" said he, at once. "It is very thirsty on the road." "With pleasure." As he rose to go to the cellar, he turned to me and asked me in a very solemn way whether I was alone. "Yes, I am alone." "Very well" He went out and came back promptly with a bottle of honey mead, on the surface of which moisture was condensing. "Oh," said I, "That bottle is too large. I told you I was alone." "It was not on account of the drink that I asked you whether you were alone. I was afraid there might be a woman with you.' "And what about it? are you afraid of women?" "No, but I do not like women in the apiary. I never let one enter for fear of giving bad luck to the bees." I was amazed. To be afraid of a woman coming to an apiary is to carry Paulinism to an extreme point. But our apiarist was a deacon, and he perhaps had had some personal experiences; unless it be just a prejudice which is carried very far in those backward regions.

On the other hand, if there are prejudices concerning the presence of the fair sex in the apiary, we must acknowledge that the "babas" or peasant wives give the men to understand clearly that they should have nothing to do with the cows. One day, in a small village, where the family which I visited owned an isolated farm, I took upon myself to show my ability in milking cows and took possession of a milking stool. A man, milking a cow; what a scandal! What pleasure can that Franzoze find in milking? They must be Godless people! While the cow was conscientiously switching the flies and transforming my clean face into mosaics, the women and children were approving her. However, when I arose with a bucketful of milk, I felt sure of securing the approval of the witnesses. On the contrary, when I attempted to empty the pail into the receptacle which was used for that purpose, the woman took possession of it and handed it to a young girl. "There, go give that to the calves." Lucky if the calves don't refuse it, also, thought I.

However, as far as bees are concerned, I once saw a very fine apiary which belonged to the wife of a doctor at Kliottschi, near Kasan. She cared for them herself and demonstrated that bees thrive even better under the care of women than that of men, for she harvested better and larger crops than the neighboring beekeepers.

As to the methods followed for the management, it is, in Russia as with us, a matter of experience following the experiences of others. I saw with great pleasure that the writings of Mr. Bertrand, of Nyon, were an authority among them, that the translation of his work was in the hands of many advanced beekeepers. For when the bee owner was a convinced adept, he did not hesitate to spend money, and one could see in his apiary all the modern improvements.—Ph. Jeanneret (Bulletin de La Suisse Romande). Translated by C. P. Dadant.

(To be continued).

Why we need extension men

WHY WE NEED EXTENSION MEN

The picture tells the tale, but I will endeavor to explain it. I visited the above back-yard and found the bees had drawn the comb out across the frames to an angle of 45 degrees, and it was impossible to remove the frames, so I removed one side of the hive and cut the comb out with a large knife. I found in one hive a few bees and a queen; the bees had dysentery and there were hundreds of moths. The entrance to the hive was seven-eighths inches high, winter and summer. In the top of this hive, which was a story and a half (hive with a shallow super), on top of the frames was a mouse nest with seven young mice. The hive was an old one and the comb showed signs of mildew. This man was glad to have a man visit him to show him his errors, and now he is an up-to-date back-yarder, with clean bees, straight comb, and will get some surplus honey this fall.

ALTON L. LOGAN,
Edwardsville, Ill.

HONEY AND ICE CREAM

Albert Peglow, of Brillion, Wis., writes to call our attention to the fact that a teaspoonful of honey mixed with a dish of ice cream greatly improves it. Beekeepers have not paid sufficient attention to cultivating a market for their product

through the ice cream parlors. A honey sundae makes a delightful dish, and once eaten, the customer will call for it again. Beekeepers can well afford to furnish placards reading as follows:

"TRY A HONEY SUNDAE"

and give some special inducement in the way of price to start with, in order to induce the soft drink establishment to place it on sale. In a few places, honey with ice cream has come into use and has proved very popular. Should such a use become general it would increase the market for honey to an enormous extent.

MEXICO BEEKEEPERS AT DALLAS

Pledges were given for the co-operative introduction of American beekeeping appliances into Mexico and the international marketing of honeys from both Mexico and the United States, as a feature of "International Day" at the Texas State Fair at Dallas, Saturday, October 16. The beekeepers of the United States were represented at the reception of Mexican officials and beekeepers by Kennith Hawkins, of the G. B. Lewis Company, and E. G. LeStourgeon, of the Texas Honey Producers' Association, of San Antonio.

The Mexican beekeepers were represented by Enrique Veraja Rubio, Assistant Secretary of the Republic of Mexico, and Governor Lic. Alfonso M. Basaldria, of the State of Queretaro, who also spoke for Guillermo Brondo, in charge of bee culture investigations at Mexico City, who could not be present. Mr. Le Stourgeon addressed the Mexican delegation in their own language and extended the felicitations of American beekeepers.

As a result of the conferences which followed between officials and business men from the sister republic, arrangements have already been made for the co-operative marketing of Mexican and American honeys and the importation into Mexico in quantities of American made bee supplies.

Beekeeping in Mexico is receiving the attention of agricultural officials, and the government is issuing literature and carrying on extensive experiments at the apiaries of the Republic and in several States. Beekeeping appliances and samples of honey formed a part of the 1700 separate articles exhibited at the Dallas International Fair, which were brought from Mexico City by the Government at the expense and courtesy of our sister Republic. Among several of the business men who attended the conference were those who are actively engaged in commercial beekeeping and the introduction of better methods for honey producers into Mexico.

THE MINISTER'S BEES

Once when visiting an old beekeeper of 70 odd years in the Yorkshire East Riding, he told me over a pipe alongside the hives that a new minister came to their parish and started beekeeping. When visiting the old Yorkshire man, the minister was informed that his bees were robbing the hives of his host. "Robbing, my bees robbing? Never; they wouldn't do such a thing." "But wouldn't they?" said the old man, "I'll show you, then." He thereupon called "young" Amos, who himself was 40 years old, and told him to take a flour dredger to t'parson's and dredge t' bees as they came out of their hives. Surely enough, in a few minutes came many floured bees intent on securing cheap honey. Of course the minister was very much surprised and pained to find that he harbored thieves at the vicarage.—W. S. Turner, in The Bee World for August.

SUGAR SUBSTITUTE MADE AT HOME

We who keep bees may well count ourselves lucky in these days of sugar shortage.

We needn't have that guilty feeling when we are satisfying that "sweet-tooth" longing. The following is a most delicious confection, made without white sugar:

Ma' Honey Penoche

1 cup honey, 3 cups brown sugar, ¾ cup of top milk, 2 tablespoons butter or nut butter (nucoa), 1 cup chopped nut meats. Boil honey, sugar and milk to the soft ball stage; add butter and boil one minute longer. Put the pan in cold water; when partly cooled, beat until creamy. Add nuts when it begins to harden.

We may use honey for sweetening ice cream, custards and all puddings. In any recipe requiring baking powder, a pinch of soda should be added to neutralize the acid contained in the honey, otherwise we unbalance the sodium and acid ingredients of the baking powder, thereby rendering the cake, etc., heavy. Then, too, one should use one-fourth less wetting and rather scant measure of honey. Our little folks are much better off when fed honey sweets, as it is much more easily digested than sugar, and contains materials for the building of their little bodies.

They love tapioca pudding made by soaking ¾ cup pearl tapioca in 3 cups of water over night. In the morning pour off and add 2 cups boiling water. Cook until transparent, add pinch of salt, ¼ cup f honey, ½ cup any tart jelly. Serve plain or with cream.

MRS. G. C. COFFIN,
Seattle, Wash.

BEEKEEPERS BY THE WAY

Atkins of U. S. A.

E. M. Atkins is a much traveled bee-man. As a young man he left England and started life as a farm hand in Ontario. There was a good-sized apiary as part of the farm equipment and Atkins soon became interested. He then studied beekeeping at the Ontario Agricultural College under Morley Pettit. Next we find him as assistant to the Dominion Apiarist on the Government Farms at Ottawa. It is a long jump from Ottawa to Iowa, but soon Atkins is found busily at work as research assistant at the Iowa Agricultural College.

Phillips always has an eye open for good men, and it was not long until he picked on Atkins for a member of his extension force, with the four States of Iowa, Missouri, Kansas and Nebraska as his territory. After spending some time in this field, inducements were offered by the Iowa institution to have Atkins work in that State exclusively. For the past two years he has traveled back and forth over Iowa, until he knows pretty nearly every flag station in the State. His apiary demonstrations have attracted much favorable attention. In several backward communities Atkins has taken over a portion of the apiary to run according to approved methods, while the balance is conducted by the owner as usual. The results have been so striking that great improvement in the beekeeping in these localities is bound to result.

On November 1, Atkins left Iowa to become extension agent for the G. B. Lewis Company. His field will now be the whole United States, with headquarters at Watertown. When beekeepers need a practical man for a place on their program, they will do well to write to Watertown and ask that Atkins be sent.

E. M. Atkins

BEST TREES FOR SHADE AND HONEY

We have been asked for a list of the best trees for planting for street and ornamental purposes, which at the same time will furnish nectar for the bees. Every section of the country has a few trees particularly well adapted to its climatic conditions. Some of these are worth trying over a wider area.

The maples thrive over a very wide scope of country and although they bloom very early, are extremely valuable as a source of nectar. The hard maple makes a particularly fine tree. The willows are adapted to every section of America, from the extreme north to the Rio Grande Valley. They produce both pollen and nectar. While the willows do not make attractive shade trees, they are rapid growers and serve well for windbreaks and such purposes.

There is no finer shade tree than the American elm, and the bees fairly roar among its blossoms when the weather is favorable. It is of principal importance as a source of pollen, however.

The basswood or linden is one of the best-known trees which furnishes honey in surplus quantity. It is native of the Northeastern States and is found as far south and west as east Texas. It makes a very desirable shade tree and where a sufficient acreage is within reach the bees gather large crops of basswood honey. The European linden is also planted quite generally in some places for shade and ornament, and is, perhaps, of equal value to the bees.

The tulip tree, commonly known as the tulip-poplar, is found over a large scope of country in the East. It is a beautiful tree, with large and showy blossoms which yield nectar profusely. It is planted successfully as far northwest as Iowa.

The sourwood tree of the Carolinas and Tennessee and adjacent regions, is one of the best for honey. Although seldom planted in the North and Middle West, it is well worthy of trial in these regions. The tupelo-gum is a wonderful source of honey in its native habitat. It is grown successfully as a lawn tree in Iowa, though seldom seen in the North. The persimmon tree furnishes shade, fruit and nectar. The writer has one growing on his home grounds in western Iowa. It is worth while for several reasons. Although the magnolias or bay-trees are probably not as valuable for the bees as some of the others, they are very attractive trees, with showy bloom, and the bees sometimes visit them freely. Although not commonly planted much north of Knoxville, Tenn., some species can be grown in Iowa and Illinois and other States with similar climate. Iowa is mentioned as the extreme limit of a number of these trees because the writer happens to be familiar with Iowa conditions and knows them to be growing there. Others can judge whether they are likely to succeed in a particular environment by comparing it with the native home of the various trees. In the extreme south and west a different list would be needed, since they are able to grow so many things which we who live in the Middle West must forego.

"It is well worth every beekeeper's while to encourage the planting of trees which are attractive to the bees, on lawns, along streets, and in parks and cemeteries.—F. C. P.

BEES ON A SMALL FARM

The photograph is of John Burgschat and apiary, near Florence, Neb., taken June 9, 1920.

Mr. Burgschat has had a colony or so of bees for several years but never gave the honey business any great consideration or attention until 1919. He joined the County Honey Producers Association, became interested in Bee Culture and is now well on the way to successs as a beekeeper. There are 25 acres in the farm under his supervision and it is devoted to haising small fruit, vegetables, some corn, oats and alfalfa. He is also a breeder of fancy White Plymouth Rock and Black Minorca chickens.

There were five colonies in the apiary last year. One of these was purchased in the spring as a two pound package. It was transferred to the hive April 25 and produced in the season 248 pounds of comb honey. Fifteen 2-pound packages of bees were gotten from the south this spring and by hatching a few stray swarms he now has 25 colonies.

EARL W. MAXWELL.
Douglas County Agricultural Agent.

Apiary of a Nebraska farmer

SOME IDEAS

By A. F. Bonney

Cement-coated nails are hard to get at present, but are easily made in this way:

Take one ounce of boiled linseed oil and three of turpentine, mix in a shallow dish, say a milk pan, and then dump in a pound of rosin that has been pounded rather fine, which may be done by enclosing it in a piece of cloth loosely and pounding it with a hammer of mallet. Let it stand, covered tightly, for a day, and best in a hot room.

You will now have a sticky mass into which the points of wire nails may be dipped for a quarter of an inch or so and then driven into place. It will hold as well as the commercial article. Lath nails are not too coarse for general work.

Insecticides

Bisulphide of carbon is expensive just now; it is very volatile and explosive, and the fumes are very heavy, which gives the bottom of a pile of hives the bulk of the benefit.

Make a pile of hives, and on top of them put several thicknesses of newspapers; put on an empty, shallow super, then with a darning needle punch holes around the edge and scattering throughout the rest of the paper. Now scatter an ounce or two of flake naphthalene on the paper and then set in a shallow dish and into it pour a couple of ounces of the bisulphide.

Accidental cracks may be plastered with clay, similarly to Dr. Miller's method of preventing leakage.

Experiments seem to show that this is an infallible cure for the moth-worm evil.

Honey Prices

I recently sent out 100 letters to beekeepers about prices, and the replies indicated that 20c was the lowest wholesale price, and 25c the highest, while 30c was the low retail price and 45c the highest.

Will the time ever come when honey producers will quit cutting each other's jugulars? Farmers get a uniform price for their product, which fluctuates, of course, but one does not see one man selling corn at $1 a bushel and another at $1.50.

Comb Honey

Last season I sold all the comb honey in 4-pound shallow extracting frames I could produce, and have a great demand for it now. Last year I received 30c, this year 40c. To deliver it I cut a piece of heavy cardboard so that it will cover the bottom and both sides of the frame, tie a string

around it, and it carries very well. A wrapping of paper prevents dripping. I look to see this package very popular in the near future, for local trade.

Conditions Here

A heavy white clover flow commenced here about June 10th. The bees worked about half the time, on account of rain, but July 11 I appeared to have an average of 100 pounds to the colony, and increased 63 per cent, almost entirely with captured swarms, which introduces a new wrinkle.

Decoy Hives

This season I sent decoy hives to farmer friends with a note, telling them if they would put the box up a tree and catch me a swarm I'd come after it and give them a can of honey. So far I have secured twelve swarms, the smallest of which weighed three pounds, the largest six. I caught eight myself.

Buck Grove, Iowa.

BEEKEEPING IN WESTERN CANADA

By Norman S. Rankin.

With the exception of British Columbia and Manitoba, beekeeping in the west can hardly be said to have attained the status of a prosperous industry, though the great interest aroused of late years would indicate a more general following of this interesting branch of farming on commercial lines. What has been indisputably proven is the adaptability of the prairie provinces to successful honey production, and that every farmer in western Canada can profitably handle a few hives for his own domestic production.

Canadian honey is unsurpassed in quality by that of any country. Owing mainly to the warmer summer and abundance of nectar-producing flowers, the average yield per colony is greater than in the British Isles. Bees can be raised and honey produced as successfully in the west as in the east. The natural bloom of Alberta, throughout the season, affords abundant food for the bees, and the alfalfa fields of the irrigated districts of the south, and clover fields of the central and northerly sections, give adequate supplies of nectar and pollen for countless hives. In British Columbia, conditions are naturally excellent, especially in the fruit districts, and honey production in the Pacific province is increasing yearly. In Saskatchewan apiaries are successfully operated in many parts of the province, while Manitoba is fast forging ahead as one of the leading beekeeping provinces of the Dominion. In the latter province apiaries are to be found where many tons of honey are produced annually.

Experimentation carried out by the government experimental farms discovered the following net production per colony of bees and honey in the different provinces: Brandon, Man., $3.27; Indian Head, Sask., $11.83; Lethbridge, Alta., $16.49; La Combe, Alta., $12.79; Invermere, B. C., $13.26; Summerland, B. C., $11.81.

The production of British Columbia in 1919 was 344,580 pounds of honey, there being 1,855 beekeepers and about 10,000 colonies in the province. Manitoba, in 1918, with 921 beekeepers and approximately 15,000 colonies of bees, produced 944,104 pounds, or 64 pounds per hive. In the Kootenay district of British Columbia alone last year 23½ tons of honey was produced the average surplus per hive being 50 pounds, as against 38 pounds for the whole province. One Slocan Valley farmer had a surplus of 2,100 pounds from three hives.

As a proof of the adaptability of the Alberta climate to bee raising and the profits to be derived therefrom, the experience of an Edmonton farmer may be cited. Starting out six years ago with a swarm of mixed bees, he managed, by importing high-bred queens, to so improve his stock that in a few years he had an almost pure-bred strain of Italian bees. He keeps from ten to fifteen hives and disposes of the increase in the spring or fall. In the year 1919 the 9 hives he possessed in the spring increased during the summer to 21, and the honey produced, less that required for winter feed, was 827 pounds, which sold at from 35 cents to 40 cents per pound. In 1913 the record of production from this apiary was 100 pounds per hive, or at prevailing prices a revenue of $40 from the honey of each hive.

Everything goes to show that bee culture and honey production are on the increase throughout the west. The Manitoba Beekeepers' Association, established in 1903 and reorganized in 1914, had 921 active members in 1918, with 15,000 colonies of bees; and the Beekeepers' Association of British Columbia, 1,183 members, with 6,830 colonies. There is also a Kootenay Beekeepers' Association.

This colony yielded one division and 196 sections of honey. The division yielded 75 pounds, making, in all, 271 pounds from one colony at beginning of season Apiary of L. Madsen, Gardner, Ill.

CLIMBING BONESET, OR DUCK BLIND

Dear Mr. Pellett: The climbing boneset (**Mikania scandens**) grows in great natural arbors along the Kankakee marshes, forming festoons over the bushes. It is known among the people of the region as "Duckblind." The vast marshes along the Kankakee appear to be a good honey-producing region, and the duckblind, with its roots in the moist soil and its flowers high up in the air, should be a good nectar-yielding plant. If there were no danger of its becoming a nuisance it would be worthy of introduction in the low grounds among the willows that fringe other rivers. It seems to have a wide range, according to the botanies, but little seems to be known about it among the beekeepers.

H. WALTON CLARK,
Fairport, Iowa.

My first introduction to the climbing boneset was in the Mississippi River bottoms in Arkansas, across from Memphis, Tenn. A party of local beekeepers went across the river to visit an apiary, with W. E. Drane as pilot. We found the bees working hard on the climbing boneset and apparently getting a good deal of nectar. None of the beekeepers in the party knew what it was. Later I found it growing in great profusion in many localities in Mississippi, but apparently few of the beekeepers were familiar with it. So far I have been unable to find any reference to the plant in the literature, and Mr. Clark's letter is the first reference to it that has come to this office. It is mentioned incidentally in the article on Tennessee in the November Journal.

Although the plant is said to occur in swamps and moist places from New England and Ontario south to Florida and Texas, it is evidently not common over the greater part of that area, else it would be better known. It is said to occur also in the West Indies and South America. The bloom is similar to that of other bonesets, and the season seems to be about the same. It was about the first of September that we saw it in Arkansas and Mississippi. It grows luxuriantly, climbing over fallen logs, fences, weeds and other objects of support.

Mohr states that it occurs in low, damp thickets from the mountain region to the coast plain of Alabama, but that it is most common in the lower pine region and the coast plain.

There are a large number of related species common in South America, especially in Brazil.

Since the above was written a sample of this same plant has been received from Jess Dalton, of Bordelonville, La., with the statement that it is one of the best honey plants in that locality. He states that there

are acres of it, literally covering shrubs and logs in marshy places. It is called potato vine and pomme de terra in this region.—F. C. P.

KEEP YOUR FEET ON THE GROUND

By H. B. Turrell

I always pay close attention when the Dadants are talking about their own bees and business, and think the readers of the Journal would, perhaps, like to hear more about their apiaries; so I am going to suggest that they might arrange to run a series of articles, which might be called "A Beekeeper's Log," throughout the year, giving their readers an intimate account of everything that occurs in their own bee-yards in that length of time.

From my own experience, I think that what the beginner lacks most is a comprehensive view of the various operations carried on in beekeeping, giving the when, why and how of the game.

My impression is that the average amateur gets his head heated up with facts and fancies until he cannot tell the white things of practical beekeeping from the blue things of speculative apiculture—in plain language, the amateur should be taught to keep his feet on the ground.

And just here allow me to suggest that the novice is the greatest source of joy and and the greatest curse of the beekeepers. Witness: (a) the questions in the "Questions and Answers" column. (b) how hard it is for the beekeepers to get a decent price for their product; (c) the spread of foulbrood throughout the country. Maryland.

I am certainly thankful for your very complimentary letter. We love to be appreciated, as every human being surely does.

The reason why we do not give more of our own experiences is exactly because, as you put it nicely, the average amateur—in fact the average man—may "get his head heated up with facts and fancies . . . . and should be taught to keep his feet on the ground."

If we were to dwell on ourselves too much, it would be a "one man's" journal and would probably lose some of its interest. In fact, it would be sure to do it. An editor needs to be constantly reminded of the necessity of "keeping his feet on the ground," and the best way to do this is to publish experiences of others, whether successful or unfortunate. We learn from both experiences, and, besides, we ascertain that we are not the only successful ones.

The novice occasionally causes an experienced beekeeper to shrug his shoulders, at the simplicity of his questions. But he points out to us where the greatest failures happen. So we hope novices will read this paragraph, and take heed.—Editor.

HONEY AT THE GLENN COUNTY FAIR

By Dora Stuart

"When the golden-hued October
Tells us we have time to spare,
We'll just yoke up Buck and Brindle
And Whoa! Haw! Gee! to the Fair."
So runs a song of forty years ago.

As a means of locomotion, Buck and Brindle have long since been replaced; but the rollicking autumn spirit is still displayed by the increasing numbers who "steer" various motor-propelled vehicles, not only to the fairs held in their own counties, but to those held in adjoining and even distant counties. Thus, on September 29, notwithstanding her thin soles, we "yoked up" Liz and "Forded" our way swiftly, though cautiously around sharp rocks, lurking ruts and over precarious bridges of unfinished highways, from Chico, Butte County, California, to view the fair, and particularly the agricultural booth, at Orland, in the neighboring county of Glenn.

Bee friends from Butte County were already at the honey booth. So were bee friends met the previous year. Dr. Sayler, Bee Inspector of Glenn County, was again in charge of the exhibit and the largest contributor to it. Indeed, Dr. Sayler may fairly be called the father of beekeeping in that county, in the sense that his energy and devotion are the principal factors in promoting the growth of the industry and the standardizing of its products.

The honey exhibit, the second for Glenn County, was a distinct improvement over that of last season, both in variety and the taste shown in arrangement. It consisted of honey—white, light amber and dark amber—wax, live bees, modern equipment, and a special exhibit of foulbrood combs.

The prize winners were:

Comb honey—R. H. Yearnshaw.
Extracted honey—M. A. Sayler.
Beeswax—R. H. Yearnshaw.
Sweepstakes—M. A. Sayler.

The judges who made the awards were:

W. H. Dickenson, Manager Department of Apiculture, Diamond Match Company; Charles Edson and J. E. Edson, his nephew, of Butte County, where they operate large apiaries both for queen-rearing and for honey-production; and C. D. Stuart, Chico.

The sources of nectar in Glenn County are practically the same as those of Butte County—star thistle, alfalfa, fruit bloom and miscellaneous wild flowers.

As a whole, the display was convincing illustration of the development of the beekeeping industry that is sure to follow the dividing up of the large land holdings in California. For, until twenty years ago, Glenn County was owned almost entirely by one man, who leased it to renters in large tracts. But with the sale of the land to small farmers, and the recent provision by the Federal Government's Stony Creek reclamation enterprise, of adequate irrigation facilities, apiculture, along with other industries of little landers, is beginning to come into its own.

The character of settlers that such enterprises invite, is witnessed by the unusually creditable display made at this last fair. Although housed in a tent, the exhibit was worthy of an older community, in which alone apiculture can thrive.

California.

Apicultural booth at Glenn County, California, Fair

THE KINGBIRD

Several letters regarding the kingbird have come to this office recently. Since the birds are not as plentiful as in former years much less is heard about them than in the past. Some beekeepers favor shooting the birds on sight, while others would protect them. From the writer's observations, he is inclined to think that the bee-catching habit is not so common

as is believed. Fred Slocum, of Michigan, writes that when one gets the habit of catching bees he kills it, but otherwise he lets the birds alone.

Howard Minnick, of New York State writes a very interesting account of his observations, showing a number of cases where the birds have been quite destructive to the bees. He mentions having seen a kingbird fly into a swarm of bees. The bees returned to the hive without clustering and swarmed again on the eighth day. He thinks that in that case the bird caught the queen.

The writer had one or more families of kingbirds living about his apiaries at Atlantic, Iowa, for a number of years, and watched them closely. It was very rare that he was able to suspect one of the birds of catching bees. Considering all the evidence at hand it appears that occasionally a kingbird will form the habit of catching bees to a serious extent. Such a bird should be disposed of. However, generally speaking, the kingbird is valuable about the farm and garden, as it lives, for the most part, upon injurious insects. The individual which is destructive should not bring distrust upon the entire species.

NOTED BEEKEEPERS

Would you please give information in the Bee Journal concerning Berlepsch and his hive, Kanitz, Dzierzon and Gravenhorst?

PENNSYLVANIA.

August Von Berlepsch was born in Seebach, Germany, in 1815. He was so fond of bees in childhood that he was given a hive of bees when he was 7 years old. In 1841 he had over 100 colonies. In 1855 he invited the two celebrated scientists, Siebold and Leuckhart, to come and make experiments upon the Dzierzon theory of parthenogenesis, in his apiary. In 1860, he published his book "The Bee and its Production in Movable-Frame Hives." The hive of his invention is of movable frames, but opening at the rear, and the frames have to be pulled out with pincers, for the ceiling of the brood-chamber is immovable. Even at present, the unwieldy pincers which he used to draw the frames out of hives are still offered for sale by some European manufacturers of bee supplies, and his hive is still used by many in Germany and German Switzerland, though it is very inconvenient.

Berlepsch was really only an active supporter of the Dzierzon ideas, though he first opposed him on many points. Most of the above facts were taken from L'Apicoltore of April, 1877.

J. G. Kanitz was a writer on bees who published "Beekeeping for Honey and Wax," 1853-60, at Henrichsdorf, Prussia (now Poland). He published also a Prussian bee magazine at Koenigsberg, about 1860.

Dr. Johann Dzierzon, a Catholic priest, was born at Lokowitz, Silesia, January 16, 1811. He was the original discoverer of parthenogenesis in the honeybee. He began writing on bees in 1844 and published his first book "Theory and Practice of the New Bee Friend" in 1848. From 1854 to 1856 he published a monthly magazine entitled, "The Beekeeper of Silesia." In 1861 he published his best work, "Rational Beekeeping," which had numerous editions and was translated into English, in 1882, by H. Dieck and S. Stutterd, and published in London by G. N. Abbott, then editor of the British Bee Journal. Dzierzon's hive was a hanging-comb hive, or bar-hive, in which the combs were hanging from a top-bar. A side door permitted of their being cut loose from the walls at either end. He wrote, page 53 of the English edition: "Under the covering of the hive are separate small, thin and narrow pieces of board, from which the comb which is to be removed is suspended, which are taken out and the combs attached to them of course accompany them, they having previously been loosened from the side walls."

It is to be wondered at how, with such inconvenient hives, he could make the discoveries which are now universally accepted and are no longer theories.

Dr. Dzierzon lived 49 years of his life at Karlsmarket, Silesia, where he made all his important studies. He died October 26, 1906, at Lokowitz, Silesia, his birthplace, aged 96 years.

C. F. H. Gravenhorst, of Braunschweig, Germany, was a writer on bees who invented a movable-frame hive of straw, the frames of which were in the shape of an oblong half circle. This hive is illustrated in the Dadant-Langstroth book, "The Hive and Honeybee." Mr. Gravenhorst published, for a long time, the "Illustrierte Bienenzeitung." He was a contributor of the American Bee Journal in the seventies, and also of divers European bee magazines. He has nothing important to his credit, in the way of discoveries.

BEE NOTES

The Sentinel Bee

By Rev. A. A. Evans

The alighting board of a hive, to the bee lover, is always an object of interest. During the daylight hours of hot summer months there is an incessant coming and going; and unless the bees are of an unusually cross-grained strain, at the busy season they are completely indifferent to the watcher, if he does not intrude too closely. But should he trespass too far on the tolerance of the workers he will become aware of a rush of two or three bees, making threatening circles around him and a distinct hiss which is a warning to be off unless he has previously guarded himself with a veil. These are the sentry bees—sentries which guard the hive entrance night and day, just as in olden time soldiers guarded the gates of human cities. Go wherever you will, however eager the bees may be with honey-getting, there are always some told off, two or three, to guard the entrance, and should the danger approaching seem to them a formidable one, by a note or sign, at once there is a rush from within of assistants to wage a defensive war.

The Ventilators

Also observable during hot and sultry days is the small regiment of bees engaged at the hive entrance in ventilating. There is no mistaking them. They seem like wingless insects, so swift and incessant is the beat of their gauze appendages, and in the night, when the alighting board is free of the throngs coming and going, and when all around is still and calm, the vibration of wings of these ventilating bees sounds in the ears like the distant roar of the sea.

Thought-out and Scientific

And notice, the ventilating bees do not stand in a loose, disarranged group, but in orderly files, one behind the other, thus catching and drawing a steady in-draught and steady out-draught. There are usually two groups, one just outside the hive entrance and one just inside, and beside these, during the time of great heat, there are parties of ventilators at regular intervals and regular lines, up to the combs; and if the watcher suspends close to the opening a thread of wool or of cotton, the strong sway of the current is at once seen and unmistakable.

Sanitary Experts

Bees need, like human creatures, fresh, pure air, and unlike many of the human kind who would live in a corked bottle if they could, they are at great pains and trouble to ensure it. Indeed, a beehive is a most wonderful lesson in a scientific ventilation. Here is a city packed such as is unknown in the most crowded human city, and yet living through the heat of summer and cold of winter with a temperature uniform and equable and with breathing air unvitiated. How is it done? The method might be worth the attention of some of our sanitary experts. For bees obtain their fresh air by what may be called a rotary system. They hate the through draught, that is, a cold current passing vertically through the hive. Their method is to combine the movement of fresh air with warmth, and to do this the watchers at the alighting board will see that the ventilating bees are always at one side of the entrance, never the center, and the fresh air is passed in at one side, made to circulate round the walls and then passed out again at the other side of the entrance; and during exceptionally hot weather, another company of bees can be seen fanning out the vitiated air.

The Sound of Far-away Sea

In so assiduously circulating pure air, bees have three important purposes in view: good air for breathing; to keep an even temperature in the hive, and to drive off the evaporation which arises from their bodies and from the honey they are brewing in their nectar vats.

There is no more interesting sight to the bee watcher than to stand outside a hive on a hot summer night and see the ceaseless beat of wings from the squadron of ventilators. Notice their orderly lines, one going and making way for another, for the work is hard and cannot be long sustained by the single bee, and listen to the subdued roar like waves falling on the distant beach.

A Hint to Beekeepers

Bees are often caused unnecessary suffering by the beekeeper who thinks he is wiser than his charges. The supers and brood nest of the bees should always have warm covers on top. Extra ventilation should only be given by opening, in hot weather, as widely as possible, the entrance blocks. A light covering only, on the top, involves to the bees more or less of vertical draught, and to the beekeeper it means a loss of honey, for the bees will never enter the supers unless they are kept warm and free from a down current.

England.

BEES IN THE CUT-OVER COUNTRY

The Success of the Apiary in the Forest Region of Cloverland

By L. D. Tucker.

Ever since the hum of the saw-mill first pierced upper Michigan's dense forests of hard wood, a half century ago, the problem of the profitable utilization of the idle, cut-over lands thus created, has been a source of endless research and study.

There have been any number of suggestions, and a few of these are now in operation. But when, just three years ago, statistics revealed the fact that there were over 8,000,000 acres of idle cut-over lands in the peninsula, the lumbermen and other big landowners began to sit up and think. "What are we going to do with it?" they asked. And then and there began an energetic campaign for almost any type of industry which dealt in cut-over grassed lands.

First came the grazer. A two-years' publicity and advertising campaign among the sheep and cattle sections of the west brought 50,000 head of sheep and 5,000 of cattle, with some 50 settlers, and they colonized, in all, approximately 100,000 acres of cut-over lands. But 100,000 is the merest fraction of 8,000,000 and, consequently, the work is only just begun.

And now comes another important feature, and one which might easily surpass the other in its relation to the more rapid growth and progress of the idle acres—beekeeping.

We sort of happened onto it, a very short time ago, while making an automobile trip to the village of Iron Mountain, Mich., where Henry Ford and son are establishing a mammoth body manufacturing plant. We pulled into the village about one hour ahead of schedule, and decided to run out beyond the limits for a short distance and look over the site of the proposed plant.

We had gone about a mile and were rounding a sharp curve, when there appeared on the side of a hill, to the right, what seemed to be three or four long rows of bird houses, perched up on stakes and nestled there among the trees as though to invite the most exclusive of the feathered tribe. We slowed up to view the sight, and then distinguished a huge sign board at the juncture of a road which turned sharply to the left, leading into the "bird house" colony. The sign read: "Eskil's Apiary."

Being more of a "news hound" than an agriculturist or a bee farmer, the sign meant little to me, and, in fact, I went so far as to ponder upon the possibility of having suddenly come upon an ape-breeding farm, a zoo or something of the sort. Imagine my surprise, then, when a mere roadside urchin informed me that: "That's where they raise them stingers.' It was a bee farm.

I had never seen a bee farm before. It was something entirely new to me. Recollecting certain eventful days in my youth, I admit painful familiarity with the buzzing species, but the thought of hazarding one's physical comfort to the extent of actually cultivating the bee had never occurred to me as a very healthy occupation.

But, armed with the reporter's curiosity, I turned into the road and drove up to the house. Finding no one at home, I walked towards the "bird houses" and encountered a rather curious sight. It, or she, was a middle-aged person, and at first sight I wondered whether or not I had intruded upon a bridal party, for she was draped from head to foot in a long, trailing veil of what appeared to me to be nothing more nor less than mosquito netting. The long, elbow-length gloves added to the "bridy" appearance.

"Pardon me, but—," I began.

"Oh, that's all right," she broke in cheerily. "Just stand back far enough so they won't see you, and you won't get bit." I looked around hurriedly for "they," expecting to see nothing more nor less than a pair of broad-chested, long-toothed English bull dogs, or, worse yet, a playful cub bear or two—but saw neither. A second glance, however, prompted me to take a sudden step backward, for, from the nearest "bird house" there arose a black cloud of the fattest, buzziest, busiest bees I had ever seen. And as they hovered playfully over my head I looked almost plaintively to the kindly-faced person for help. I gazed warily once more, at the "bird house," and ventured a step forward. "I was just passing by, and noticing the sign, thought I'd drop in and find out what it was all about," I remarked.

"Well, to begin with, she replied, smilingly, "it's a bee farm—an apiary." I agreed, with a frantic swing at a huge drone which hung all too close to the end of my nose. "So I see."

"You might tell me, if you will," I began, "what you think of this country as a honey producer," and I neglected my friend the bee long enough to dig up my pencil and paper.

"Well, this particular spot here used to be ideal for cultivating bees and producing honey," she remarked, "but I'm afraid the community is becoming too thickly populated lately to permit sufficient open area for the bees to work in.'

"We have 110 hives," she remarked, placing her hand rather affectionately, I thought, on one of the "bird houses." And incidentally, right then and there I learned the "why" of the "bird houses." "During the past several years we have averaged $35 to $40 profit on each hive." A hasty mental calculation placed the aggregate at about $4,400. "This year, however, we were forced to move part of our apiary to a les thickly settled district. My husband is handling that end of it, and I am closing the season out here at the old stand.

"I believe that the open, cut-over areas are the best type of lands for the profitable raising of bees," continued Mrs. Eskil, busily scraping away on a comb which she had lifted from the hive. "You will notice that most of the open areas in this northern Michigan country are thickly covered with the different types of clover-alsike, June red-top and others. And the clover, of course, is the ideal stamping ground for the bee.

"In our several years of operation in upper Michigan, we have enjoyed excellent success. With very little extra help we have found time not only to care for our apiary of 110 hives, but to do quite a bit of farming as well,' and she waved a hand towards a narrow valley just beyond the house, where corn, potatoes and other truck crops appeared to be thriving in the best of manner. "And what's more," she remarked, emphasizing the statement with a brandish of the knife she was using, "Mr. Eskil has a photographic studio over there at Iron Mountain, in which he spends considerable time."

Nest of titmouse under cover of Dadant hive, at apiary of Ugo Lori near Florence, Italy.

"We have tried the bee game in other sections throughout the middle west," she continued, moving on to the next hive, "and experience has taught us that with a knowledge of the business the bee farmer can make good, on a big scale, in this cut-over country."

Just between you and me and the twelve bees that left me only when I sought refuge behind the wheel of my car, there is a future in bee farming for the upper Michigan farmer, if he will grasp his opportunity. It is somewhat of a "new thought" in the utilization of upper Michigan's 8,000,000 or more acres of clover-laden cut-over lands, and bee farming is going to be the subject of a widespread campaign among the farmers of northern Michigan from this time on.

Michigan.

DEMAREE SWARM PREVENTION

In March I had a very heavy hive (A) with 8 frames of brood and some queen-cells fairly well advanced. I decided to try the much-advocated plan of "anti-swarming," thinking that a few days would not matter much, or at least could be easily redressed.

Another hive-body (B) was placed above A, and in it the old queen, (saved from a nucleus the previous autumn), 2 combs of young brood and the rest filled with frames completely built, and, of course, an excluder between.

The 10th day, or about, the queen-cells in A were all destroyed except the best one.

Soon began a series of adventures. On a fine day, the bees in A swarmed twice, clustered upon a privet at hand; but, finding that somebody had played "foul," returned home, ashamed of their misadventure.

Is not this the evident proof that the worker-bees swarm out of their own initiative, without guidance or "mot d'ordre" from the queen?

In due time the new queen in A had emerged and was doing pretty well, not troubling herself in the least with swarming. But the bees surely had gotten the fever and were always on the lookout for an outing. So another fine day they swarmed twice in the morning, and a third time at 2 o'clock. But, strange to say, after a while, they returned home, where there began an earnest fight, in which half a swarm was killed. I smoked them thoroughly till anger vanished. Calm having prevailed, I decided to make a thorough investigation of that queer occurrence.

Lo, on the bottom of A there were two queens being balled—an old one and a young virgin. The old queen I understood later, was the one of a small swarm which had issued just in the time when the bees of A were coming back. Both queens were set free, the virgin caged for a moment.

Fearing more mishaps with those bees, I determined to divide them and set them at peace. I opened the hive B and looked for the queen, but could not find her. I was at a loss. Reviewing the frames carefully, I noticed under the top-bar of the last frame a group of bees, very earnest at some business, like they are when after moths. There was my good old queen furiously attacked by her bees—playing "foul!" She must have the penalty. What to do? Thinking the new queen would fare better, I killed the old one and gave the new queen in a new hive (C).

Result: The three queens have been lost—two weaklings instead of a strong hive which could have stored 50 pounds of honey. Much trouble for nothing. Mais peut etre que la lecon vaut la chanson.

What do you think of that? There is much said for and against that anti-swarming plan. Perhaps the difficulty came from the circumstances when it was applied.

Shanghai, China.

Answer.—Undoubtedly the trouble came, as you say, from the circumstances. Had not another swarm joined this one, there would have probably been no fight. But two queens in one hive of two stories only, separated by a mere queen-excluder, will sooner or later cause trouble, especially at the end of the honey harvest. At best, the Demaree system serves only as a temporary prevention of swarming, if no unusual occurrence interferes.

In many instances, the bees of a colony with a virgin queen attempt to swarm when their queen goes out to mate. In such circumstances, however, they do not usually return, unless the queen herself returns.—Ed.

HERE FROM PALESTINE TO STUDY BEE CULTURE

To study American methods of bee culture and honey production in order to introduce them into Palestine, Alexander Livshitz, of Jaffa, President of the Beekeepers' Association of Palestine, has just arrived in this country. He plans to spend four months in California studying modern agriculture, principally bee culture.

Mr. Livshitz, who is the leading bee cultivator in Palestine, heads a finely developed co-operative association, which has increased the number of bee hives in Palestine from 100 eight years ago, to 4,000 today. With the machinery he intends purchasing here, together with the new ideas he will take back with him, Mr. Livshitz declares his association will possess 20,000 bee hives within several years.

He expects to disseminate the information he will secure here by publishing agricultural texts in Hebrew, based on his California investigations, which will be distributed throughout Palestine by means of traveling libraries. Mr. Livshitz is a typical Eastern Europe Zionist, who studied agriculture in Russia in order to establish himself in Palestine and aid in developing it into the Jewish national homeland.—New York Post.

ODDS AND ENDS

Convention Dates

We wish to remind our readers of the dates of the following conventions which are held near together: Wisconsin at Madison, on December 2 and 3; Chicago Northwestern at Chicago, on December 6 and 7; Minnesota at Minneapolis, December 7 and 8, and Illinois at Springfield, on December 14 and 15.

Minnesota Convention

The annual meeting of the Minnesota Beekeepers' Association will be held at the meeting rooms of the Medical Association, Donaldson Building, Seventh and Nicollet, Minneapolis, Minn., December 7 and 8, 1920.

OTTO L. WILLIE, Secretary.

Illinois Convention

The State Association meeting will be held in the Leland Hotel, Sun Par-

Part of apiary of Ugo Lori at Pratolino, near Florence, Italy

lor, at Springfield, Ill., on December 14 and 15, 1920. Rates $2.00 to $2.50 without bath; $3.00 and up with bath.

Program will be announced later. Try to be with us and enjoy yourself; if this is not possible and you have a question you want discussed, send it in.

G. M, WITHROW, Secretary.

Kansas Meeting

Kansas will have a "Farm and Home Week" February 7 to 12, 1921. The beekeepers will meet and expect the presence of a number of leading men at the meeting. For particulars and program address Dr. J. H. Merrill, State Apiarist, at Manhattan.

Domestic Beekeeper Sold

We are advised that Arthur Rattray has sold the Domestic Beekeeper to E. A. Little, of Lansing, Mich. This magazine was established by the late W. Z. Hutchinson, under the name of Beekeeper's Review. Since the death of its founder it has changed hands several times. E. B. Tyrrell published it for a time, then sold it to the National Beekeepers' Association. E. D. Townsend published it for several years after the National decided against the publication of an official organ. Townsend sold it to Rattray.

Want Cuban Honey Excluded

The Manatee beekeepers, at their meeting at Sarasota, Fla., on October 28, passed a resolution favoring the exclusion of Cuban and West Indian honey, on account of danger of bee-disease infection.

Since foulbrood is now so generally scattered over the United States, we doubt whether it will be possible to secure such a quarantine as this.

Von Ronzelen to Texas

A. G. Von Ronzelen, formerly of St. Louis, Mo., has removed to San Antonio, Texas. He contemplates going into the bee business in Texas, and will possibly establish a queen-rearing yard.

Home From San Domingo

Henry Brenner, who has been for some years a large beekeeper in Porto Rico and San Domingo, and whose observations on West Indian apiculture have often appeared in the American Bee Journal, has returned to his old home in Seguin, Texas, where he intends to resume the business of honey production.

Rich or Poor

When asked about the returns from bees, J. C. Davis, of Corydon, Iowa, said that judging from the best years one could soon get rich at the business, while judging from poor years, one would soon go bankrupt. On the average, the bees insure a good living and a little to lay aside, if properly cared for.

Some Want a Tariff on Honey

The suggestion has been made that a committee of prominent beekeepers be appointed to take up the question of having an import duty levied on honey coming into this country. There is practically no honey being now exported, and the great quantity coming in from the Indies and Latin America has given impetus to this project.

Aluminum Honey Comb Company

Mention has already been made in these pages of the fact that the Aluminum Honey Comb Company is bankrupt. The affairs of the company are now in the hands of a receiver. George F. Bush is receiver. Any beekeepers who have claims against this company which are unsettled, should write at once to the receiver and state the amount, as the assets of the company will be sold and divided among the creditors. Creditors should act promptly in order to protect their rights.

Newell Edits Bee Department

The Florida Grower has an attractive bee department edited by Wilmon Newell. The Florida Grower is an interesting periodical, and no better man could have been found to conduct the bee department. More and more interest is being manifested in beekeeping by the various farm and poultry publications.

Short Course at Columbia

A short course in beekeeping at the University of Columbia, Missouri, is announced for five days during Farmers' Week. A more extended course is offered the two-year students at the college.

A County Agent Gets Some Honey

L. F. Childers, County Agent at Fayette, Mo., secured about 100 pounds of surplus honey from each of his 25 colonies the past season, according to press reports. County Agents are highly busy fellows, but $800 from a few bees in the back yard is not a bad showing, even for a County Agent.

Short Courses at Ames

Plans are now being developed for the beekeepers' short course, which will be held at Ames during the Farm and Home Week. The date for this annual meeting is January 3 to 8, 1921. Many beekeepers were disappointed last year when the Beekeepers' School was abandoned on account of the influenza epidemic. It will be their aim this year to have a program which will be of exceptional value to every person interested in beekeeping. We have already heard many express their intention to attend this short course. Make your plans now.

New Course at Iowa College

A new course is to be offered this year by the Iowa State College, called the Course for Poultrymen, Beekeepers and Horticulturists. The course begins January 10 and closes March 23, 1921. This is a specialized course for those who may have had practical experience in their lines, but desire more definite information regarding their industry, and for those who are expecting to do work along these lines. The work is largely of a practical nature.

The course is of 12 weeks duration, divided into two six weeks periods. The work may be taken continuously or may be taken six weeks one year and completed in six weeks another year.

In addition to the special line, electives may be chosen from any non-collegiate subject offered by the college.

Upon completion of the course and one year of practical experience, a certificate will be granted.

A special booklet describing in detail the work of this course will be offered for distribution in the near future. A copy can be secured from the State Apiarist.

Suggestion

H. Long, of Wooster, Ohio, suggests that for making large tops for summer or winter use, two-ply felt roofing with a coat of roof paint provides a light, dry and cheap roof. He also suggests bending down the tines of a four-tine table fork and filing them sharp to scrape off the heads of drone-brood when he has the hive open.

Finding the Queenless Hive

W. H. Bacus, of Pleasant Hill, Ill., writes that in removing the comb-honey supers from five hives, he found one in which the old queen with some bees had remained. He caged the queen and took her to the house, but was at a loss to know in which hive she belonged. It looked like quite a task to examine the five colonies and locate the queens in four of them to determine where she should go. The next morning he took five cells from nursery cages and placed one at the entrance of each of the five hives. In the evening four of them had been destroyed and the fifth was carefuly guarded. He was thus able to tell where the queen belonged and to release her in her own colony.

Bees Buy Bonds

Chris Jessen, of Eldridge, Iowa, bought $400 of Liberty Bonds and supplied the family table with honey from the product of seven hives in 1918. In 1919 his bees had increased to 13 colonies, and that year he bought $250 of bonds and supplied the table with their product. In 1920 his returns were very much smaller. There is a great seasonable variation in the returns from the bees, but for a series of ten years they pay as well or better than other lines of outdoor effort.

Minnesota Bulletins

Two bulletins of interest to beekeepers are published by the State University of Minnesota. "Care of Bees in Spring," by Francis Jager, Chief of the Division of Bee Culture, is

Special Bulletin No. 38. "Queen Rearing," by G. C. Matthews, is Special Bulletin No. 49. Those interested can probably obtain copies by addressing the Division of Bee Culture, State University, St. Paul, Minn.

British Columbia

I was sorry to hear that Dr. Miller had left us. He hoped for one form of immortality; he gained a sure one in the beekeeping world by his great service to beekeepers.

I signalized my tenth season as bee inspector by taking a trip to 55 degrees north latitude. Say, I saw for the first time in my life a real honey country. I can see that Bulkley and Nechacco Valleys at no distant date will beat Southern California in total production, and in average per hive. Fireweed abounds plentifully in the south of British Columbia, but it is everywhere along the Grand Trunk Railway—and it is different, oh, so different. Botanically, no; but in nectar and in general effect—vastly different.

F. DUNDAS TODD.

Beekeepers' Congress in Trieste

The annual congress of Italian beekeepers met in Trieste, in the "now redeemed" Austrian Italy, September 6 to 9. A commemorative plate of bronze was donated by them to the City of Trieste with the following inscription:

"To the city faithful to Rome, returned to the fatherland, the 6th national congress of beekeepers, September 5, 1920."

Seven of the leading Italian beekeepers there joined in mailing a postal card to our editor, with their "cordial salutations."

A New Organization

The Madison County Beekeepers' Association was organized October 1, 1920, at the court house in Edwardsville, Ill.

Mr. Alton L. Morgan, of Edwardsville, Chairman.

Mr. Earl Waggoner, of Alton, Secretary.

Mrs. F. J. Meyers, of Edwardsville, Treasurer.

Mr. A. L. Kildow, Chief Inspector of Apiaries, spoke on foulbrood; Mr. Albert Waggoner, of Edwardsville, on "Honey and Extracting," and Mr. Alton L. Logan on "Standard Hives and Fixtures."

The Association met again about November 15, to discuss the proper way to winter bees locally.

Skunks

J. S. Beermaker, of San Diego, Cal., writes that he was troubled with skunks killing his bees. He placed some strychnine on bacon beside the hives and the skunks died within ten feet. He states that the crop in his locality was good the past season.

Propolis for Incense

The possible use of propolis for incense in the Catholic churches is recalled by L'Abeille of Quebec, in the October number. A letter from Mgr. P. E. Roy, of Seleucie, states that it has all the odoriferous properties of incense and may be advantageously substituted for the latter, in ceremonies. All beekeepers know that propolis burns with a very sweet odor. So does beeswax, and that is probably why the Greek Catholic churches of Russia use no other luminaries.

Water Paint

From Illinois, A. Mottaz writes in answer to "Iowa's" enquiry, that several years ago he bought and applied water paint to about 200 hives and supers, but that it was unsatisfactory. On hives exposed to the weather, after a few rains it would rub off on his clothes.

THE EDITOR'S ANSWERS

We answer as many questions as space will permit, in order received. When stamp is enclosed, the editor will answer by mail. We now receive more questions than we can answer in the Journal.

Vinegar From Honey—Granulation

1. How do you make vinegar, from honey or from the washings?

2. Will white clover honey granulate in the comb very soon? It is in sections, not broken. MISSOURI.

1. We give the method of making vinegar about twice a year, in the question department. Make your honey water heavy enough so it will float an egg. The egg should show only about the size of a dime above the surface. If it shows more, add some water; if it shows less, add some honey. Heat it so as to kill the undesirable ferments that may be in it. Then add some fruit juice, grape juice or fresh cider. It does not require very much. The liquid must be kept at a warm temperature, say about 75 to 80 degrees. It will do at 70 degrees, but will ferment more slowly. It first has an alcoholic fermentation, but it soon sours if you allow the air to get to it. When it is quite well fermented you can hasten the acetic fermentation by adding a little vinegar or vinegar-mother.

2. Comb honey rarely granulates, unless it is one of the thick grades, like heather. White honey doe not usually granulate in sealed cells, unless the bees sealed it before it was ripe. I remember peddling some clover honey, in the comb, in January. Some of it was oroken in the trip and leaked down into the crate. I brought it back home and put it away in the honey house. Three days after, that leaking honey was granulated, although the other was still liquid.

You may keep it either in the crates, or even on shelves, just so you have it in a dry place away from too much cold, light or dust. It is not likely that you will have any trouble with granulation.

Disease Killing Queens

We are sending under separate cover a sample of brood which is diseased and we have not been able to decide what it is. Could see no trace of it a month ago, but now, at the beginning of a honey flow, it has commenced to show. The workers have killed 12 queens out of 59 stands. This yard was moved about 30 miles about a month ago. Would that make any difference? WYOMING.

Answer.—The small sample received contained a number of healthy pupæ which had evidently died in transportation. One bee had hatched and was alive still. There were 4 or 5 cells of deep-colored pollen and 3 dead larvæ which ha t evidently died of disease. But these were not similar to the larvæ that die of foulbrood, as they were not rotten, but rather dried up.

We are not experts, but from the knowledge we have of brood diseases, we would call the disease that killed those larvæ "sacbrood," for there were none of the appearances of real foulbrood.

However, I would recommend that you send sample of the diseased brood to Dr. E. F. Phillips, at the Bureau of Entomology, at Washington. They will send you bulletins that will help you in curing diseases of bees. Sacbrood is not infectious, and if we surmise rightly, it will probably diminish and finally disappear.

As to the bees killing their queens, there is something incongruous about this. Perhaps the bees have a touch of paralysis and the queens died of this. The moving ought not to be the cause of any trouble.

Since it is very difficult to pass on dead brood from so small a sample, after 5 days of travel, we urge you not to depend too much on this diagnosis, but investigate further.The folks at Washington have means which we do not possess of distinguishing diseases.

Cost of Moving

1. Do you think it would pay to ship about 16 colonies of bees in car with other goods, to Michigan or Wisconsin?

2. About how much would it cost to ship carload of bees and other goods from Illinois to Michigan, or Wisconsin? ILLINOIS.

Answers.—1. That depends upon what you can sell your bees for at your place and buy others at your new location. If the purchase price be as little or less than the selling price, then it would not pay to move them. Indeed, it might be better not to move them if you had to pay a little more for the new than you could sell the old for, because the risk and trouble of hipping is to be considered. Of course, I am supposing that the new are in every way as good as the old.

2. I've no sort of an idea. There might be a thousand different answers to the question, depending on the distance to different points. Your station agent ought to be able to tell you about it.

Moths

What is the best way to store frames of comb from one season to the other without the beemoth getting them. We will have about 1,500 frames, as we will have to remove them from the bees. LOUISIANA.

Answer.—In the Northern States, there is but little difficulty in preserving combs through the winter, as the cold destroys the eggs and larvæ. But in the Southern States, and especially as far south as Louisiana, it is necessary to use great care.

They should be stored in a moth-proof building. You can probably make a rough board house moth-proof by lining it on the inside with tarred paper. The windows and doors, if open, must have screens. To make sure of destroying the moths that are probably in the combs at the time of putting them away, the cheapest method is to burn enough brimstone in the room to kill the flies in it. If the su-

pers containing the combs are scattered about the room, they will gain the full benefit of the brimstone. This material can usually be bought already prepared for burning, at any drug store. If you can not find it already prepared, buy the rough brimstone or sulphur, melt it in a pot over a fire, out-of-doors, and dip pieces of rag into it. In this shape you can use more or less, as needed. Set it in a pan, on a stone, in the room; light it and leave the room, carefully closing all openings. Repeat the operation in two or three weeks, in case some eggs have hatched or in case the moths or grubs have not been all killed. Then keep the room well closed, especially at night, for the moth is a night bird. A quarter's worth of brimstone will kill all the moths you may have.

Yield of Sweet Clover—Foundation—Candy, Etc.

1. I would like to know if anyone has an idea how much honey there is in an acre of sweet clover?

2. Can light section foundation be used in the brood-chamber?

3. If bees have plenty of honey and are kept in a very warm place in winter, what will happen?

4. How can one make candy for bees?

5. Which is the most economical in the production of comb honey, the pound or two-pound boxes? VERMONT.

Answers.—1. I do not remember ever to have seen any estimate, but it must be quite a yield.

2. Yes, if sufficiently reenforced.

3. Generally it will happen that they will be dead by spring, but in some cases they have been kept over. But there is no gain by it except the interest of watching them.

4. You will find particulars in the bee-books, the main thing being to boil the syrup till it will crack when dropped into cold water, but not to burn it.

5. The 2-pound, provided it can be sold for twice as much as the 1-pound.

Scent to Draw Bees

Can you tell me about a scent to draw bees? I am hunting bees out of the woods. PENNSYLVANIA.

Answer.—The odor of burnt wax, especially old combs, is probably the best odor to draw bees from a distance. Of course the wind must be right. The combs should be burnt slowly, so as to make as much smoke as possible. However, if the bees are getting honey out of the fields at the time, nothing will draw them away from this source.

Cross Combs

I have two swarms that were hived this spring, one in an 8-frame hive and one in a 10-frame hive. These bees have built their comb almost solid in their hive from frame to frame; no chance to take them out. They seem to have some disease; some dead bees in front of each hive early in the morning. Some will come out, try to fly and fall and act crazy till they die. Have seen some fill up on water, start to fly and fall and die in 5 or 10 minutes. INDIANA.

Answer.—You are not the only man who finds that his bees have built their combs criss-cross in the hive. The only way to avoid this trouble is to give your bees full sheets of foundation, well fastened in the frames. It is often better to use a few built combs, taken from other colonies, giving the colonies sheets of foundation to work, as a natural swarm, if hived on foundation, may pull the sheets down even when wired.

The only way to get your bees onto straight combs is to transfer those combs into other frames, during apple bloom, in spring. That is the best time, as the combs are then light.

It is difficult to tell, from your description, what ails your bees. If only a few drag themselves about in front of the hive, they may simply be old, worn-out bees. If a large number this fall, it may be paralysis, though this does not usually happen in the fall, in Indiana. If the population of each hive is still very strong, there probably but little danger of anything serious and no cause for worry.

What Size of Hive?

I am soon to increase my apiary and I cannot decide on a hive—Langstroth or Dadant. I expect to raise comb and extracted honey, but would like to have only one kind of hive. The Dadant is too large for comb honey and the Langstroth does not prevent swarming, or produce extracted honey as well as the Dadant. Can I use the Dadant hive all around and on comb honey take out about 3 frames and put in place a division board? KANSAS.

Answer.—Nothing is more annoying than to have two different sizes of hives in an apiary. We know that by experience. For that reason we never advise anyone to change from one style to another. Good use can be made of the Langstroth hive by using a greater number of stories. But the deeper frame has proven better in a number of ways, and especially for wintering. So if you have only a limited number of hives and want to increase largely, you might use your Langstroth hives and frames for supers or for comb-honey production. Of course, the reduction of the number of frames in the Dadant hive will have as a result the forcing of the bees more readily in the supers. But this gives similar results to those of small hives. Each man must decide for himself what is best in his case.

Swarms or Nuclei

I lost two swarms this spring. I laid it to the cold weather in the month of May. I shall start again in the spring. Whether to buy full swarms, or just nuclei, is the question. WASHINGTON

Answer.—The answer to this question depends upon the occasions that you may have. Full swarms are much better than nuclei, if they are secured at the right time. But you may be able to buy nuclei early enough to make good colonies out of them.

Wintering

I should like to know your opinion on wintering a small colony of bees; would you think it advisable to put them on top of a strong colony with a screen between the two? NEW YORK.

Answer.—It might do in the cellar. It does not impress us as practical for out doors

Moving Hive—Climbing Milkweed

1. During the swarming season, if a colony is ready to swarm and is moved directly back 7 or 8 feet, on a new stand, and a new hive is placed on the old stand exactly like the old hive, and a new queen put into new hive, and old hive made to look entirely different, would field bees go to new hive and queen?

2. Can you furnish seed of climbing milkweed; if not, can you tell me where it can be obtained? IOWA.

Answers.—1. Yes, the field bees will go to that spot, for that is the only spot they know for their home. The only objections to this method are: 1st, there will be no young bees in that new hive to build comb and help take care of the brood and *that* is their work. A quart or two of young bees ought to be given the new colony. 2nd, the hive which is removed will have no old bees at all and may need food if the season is backward or cold. Yet much increase is made in just about this manner, with good success, usually.

2. We do not believe it is advisable to introduce it in your vicinity, for it appears to be an undesirable pest in the fields.

Bees Diseased

My bees have had an ailment similar to Nosema apis. I sent samples to the Government Bureau, but they could find nothing wrong. Lost about 25 colonies last year. There is a preserving and jelly factory near me which dumps broken jars and cans of raspberry extracts and apple butter, etc near my yard in a hollow. I've seen my bees amongst this stuff. Could that be the cause of their trouble? They run from their hives and flutter their wings as if they had paralysis almost all year around. MISSOURI.

Auswer.—It is possible, but not probable, that the jelly factory has anything to do with the disease of your bees. However, if the disease continues all the year round it would be an indication in that direction. There are evidently several diseases of the adult bees which have not yet been very well diagnosed. We believe that Isle-of Wight disease is due mainly to the damp climate of the British Isles. In this country, constipation, caused by inferior food in winter, has probably been the cause of some deaths in spring of a disease similar in appearance to that caused by the Nosema. It will be advisable for you to note whether there are times when the disease disappears and whether those coincide with a stopping of the dumping of the refuse in the ditch in question. We would welcome further information on the subject.

Putting Queen Above—Mating

1. In the spring, I am thinking of putting a hive-body above my old one, with a super and excluding-board between. Could I take a couple of frames of brood, with the old queen, out of the lower story and put them in the upper story with frames full of foundation, and, if so, would they rear a new queen below?

2. Should I leave an entrance in the upper body-hive, or close it up and have just the lower entrance?

3. Would you advise me to put some supers between the two bodies, or one between and one above?

4. Why cannot a queen mate in her own hive? NEW HAMPSHIRE.

Answers.—1. Yes. They usually rear queen-cells under those circumstances.

2. It is not necessary with queen above.

3. It will really be better to put supers between the two bodies if you expect the bees to retain two queens for any length of time in the same hive. The tendency is for the bees to kill one of those queens, even when there is a queen excluder between them.

4. A queen cannot mate in her own hive, because nature has provided that the sexual organs of the drones require the exercise of flight in order to exude from the abdomen. Mating is impossible except in flight. A queen surrounded with thousands of drones will not mate except on the wing.

Drone-Brood

Off and on, in my comb honey, I find sections having drone-brood; otherwise of the best grade. It has been my way to cut this out and put the sections back, hoping that the bees would fill them; this rarely is done; the bees preferring to finish up the under edges of such sections and letting them go. The other day it occurred to me that it might be better not to cut out such brood, letting that brood develop and the drone emerge; the cells then being empty, the bees might fill them out with honey. What do you think of this? PENNSYLVANIA.

Answer.—The reason why the bees did not fill them after cutting out the drone-brood was, probably, because they were nearing the end of the crop and had room in other parts. Allowing the drones to hatch, the bees would probably fill those sections with honey. But they would be darkened with the cocoons of the drone-brood and would be of less value for sale. If this happens much in your hives, better use a queen excluder.

Indiana Convention

The Indiana Beekeepers' Association will hold their annual convention at the State House in Indianapolis on Thursday and Friday, December 9 and 10. A good attendance is expected.

Former King a Beekeeper

Former King Manuel of Portugal keeps bees at present at Fulwell Park, somewhere near Richmond, England; the British Bee Journal giving a picture of his apiary. But it appears he has a "Master of the King's Bees," so he is not much of a beekeeper, after all.

Washington Joint Meeting

On December 14, 15 and 16, in Spokane, will be held the joint meeting of the Washington State Beekeepers and the Inland Empire Associations, at the same time as the State Horticultural Association, in the famous Davenport Hotel.

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Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

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WE are now booking orders for early spring delivery of two and three-frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.

Sarasota Bee Co., Sarasota, Fla.

PACKAGE BEES—Same old prices if you send cash with order before January 1.

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FOR SPRING DELIVERY—One good Italian queen, 1 Hoffman standard frame emerging brood, 1 pound live bees, price complete $6.50, f. o. b. Bordelonville. Queen introduced, mated, laying enroute; loss in transit replaced if noted on express tag by agent; no disease in State. References given. Orders booked, May delivery, one-fifth cash; orders filled in rotation. Jess Dalton, Bordelonville, La.

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Edson Apiaries, Gridley, Calif.

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Garden City Apiaries, San Jose, Calif.

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R. 3, Box 166, Chico, Calif.

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E. B. Ault, Prop.

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WANTED—Comb and extracted honey.
The L. H. Snider Apiaries, Auburn, Ind.

WHITE CLOVER HONEY in 10-lb. pails, 6 pails to case, 25c pound.
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FOR SALE—One-pound jars in two doz. cases, ten cases or more at $1.75 per case, f. o. b. factory.
A. G. Woodman Co., Grand Rapids, Mich

FOR SALE—Good second-hand double-deck comb honey shipping cases for 4¼x4¼x1⅞ sections, 25 cents per case, f. o. b. Cincinnati; terms cash with order.
C. H. W Weber & Co.,
2146 Central Ave., Cincinnati, O.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati. Terms cash with order. C. H W Weber & Co.,
2146 Central Ave., Cincinnati, O.

SEND us a list of goods wanted and will quote you lowest prices. We are the money-saving house. Price list free. Try us.
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Chris Bahr, Cathay, N. D.

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Superior Honey Co., Ogden, Utah.

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Nueces County Apiaries, Calallen, Texas.

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We have been fortunate enough to secure a fresh supply of all kinds of tin cans and glass jars for our customers.

The cases for two five-gallon cans are of the best. Made of three-eighths inch lumber, with seven-eighths inch heads, and the heads of the boxes are cleated to make the very strongest package possible. We recommend them as being the very best on the market.

Friction top cans in any kind of case you may require, 2½-lb., 5-lb., 10-lb., in cases of 6, 12, 24, 50 and 100.

We handle 6-ounce jelly glasses, 2 dozen to the case.

We also call your special attention to our 16-ounce screw-cap jars. A tall package that is a favorite with everyone who has used or seen it. These are packed 2 dozen in a case. We can recommend them most highly.

Write today for our prices on all these cans and jars. They will interest you.

Be sure to ask, also, for our honey label catalog.

DADANT & SONS, Hamilton, Ill.

Printing

Honey Labels
Stationery
Cards, Tags,
Etc.

Everything for the Beekeeper

Order Early and get Prompt Service

New labels, new equipment, more help. We are better equipped than ever to supply all kinds of printing for the beekeeper

American Bee Journal
HAMILTON, ILL.

ATTENTION, PACIFIC NORTHWEST BEEKEEPERS!

We handle a full line of supplies for beekeepers, including **Italian Queens.** Write us your requirements and for our Catalog A. It's **free.**

SPOKANE SEED CO.,
906 First Ave. Spokane, Wash.

BEST GOLDEN ITALIANS

BEN G. DAVIS, SPRING HILL TENN.

A NEW BEE BOOK
"Dadant's System of Beekeeping"
Price $1.00.

QUEENS

In announcing our policy for 1921, we feel that the few changes we make will be to the mutual advantage of our customers and ourselves. The demand for our queens has become such that we will discontinue the sale of bees in packages, and will devote all our time and attention to rearing and developing our strain of Italians that have proved so satisfactory to our customers in the past. We will sell but **One Grade of Queens,** and that **the very best** that we are capable of producing. Our original stock was procured from Mr. Doolittle, and by constantly breeding for desirable qualities, and by rearing all queens under the most favorable conditions, queens of high standard are the result.

We are Now Booking Orders for 1921 delivery, and those wishing to get queens at any specific date should place orders early, as we fill orders in rotation. Our shipping season is from May 15 to October 15.

Every Queen is reared by me personally, and by me inspected before I put her into the mailing cage. Safe arrival, pure mating and satisfaction is our guarantee. We are specializing on **Breeding Stock.** We do not sell package bees, nuclei or virgin queens.

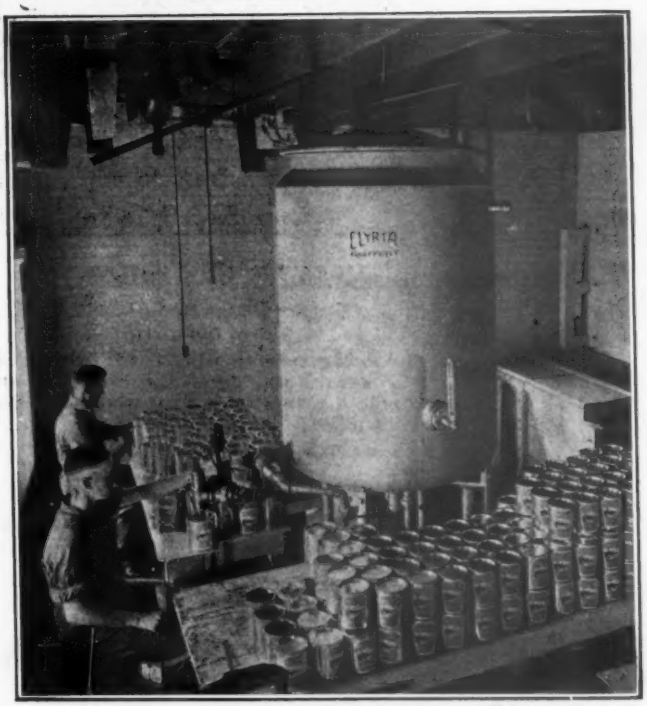
Prices for 1921

1 to 4, inclusive	$3.00 each
5 to 9, inclusive	2.90 each
10 or more	2.80 each
Breeding Queens	12.00 each

WRITE FOR OUR 1921 CATALOG

JAY SMITH

Route 3 **VINCENNES, IND.**



Honey Blending *in* *Glass Lined Steel Tanks*

Every honey dealer recognizes the advantage of producing uniformly colored honey.

Elyria Glass Lined Steel Tanks are equipped with the Nielson Propeller agitator. It operates on the principal of the ships propeller, requires little power, affords quick and complete agitation and perfect blending is assured. During agitation the honey is kept at the required temperature by circulating hot water in the tank jacket.

Stout steel tanks, lined with hard smooth glass enamel, are durable, sanitary and easily cleaned.

Elyria Honey Melting Ovens complete the melting process in four or five hours, and every can is saved

Write to our nearest branch office for detailed information

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NEW YORK	CHICAGO	PITTSBURGH	SAN FRANCISCO	LOS ANGELES
103 Park Avenue	Conway Bldg.	Oliver Bldg.	16 California St.	San Fernando Bldg.

Canadian Representatives, **CANADIAN MILK PRODUCTS LIMITED, Toronto, Ont.**

MONTREAL, QUE. ST. JOHN, N. B. WINNIPEG, MAN. VANCOUVER, B. C.

We will be in our new home January 1, 1921 and will be able to take care of all our good customers better than ever before. If in the city please call and visit us.

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CINCINNATI, OHIO
2163-65-67 CENTRAL AVE.

The Diamond Match Co.
(APIARY DEPT.)
MANUFACTURERS OF
Beekeepers' Supplies
CHICO, CAL., U. S. A.

Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

The Diamond Match Co.
Apiary Department **CHICO, CAL., U. S. A.**

Quality Bee Supplies

FROM A

RELIABLE HOUSE

Without fear or favor I place my BEE WARE and SERVICE before you

It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using MONDENG'S GOODS.

Quality is first—save time when you put your goods together by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

I am ready to meet your urgent needs. Send for my latest price list.

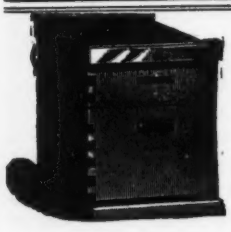
CHAS. MONDENG
146 Newton Ave. N. and 159 Cedar Lake Rd. Minneapolis, Minn.

ELECTRIC IMBEDDER
Price without Batteries $1.50
Not postpaid.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

For sale by all bee supply dealers

Dadant & Sons, Manufacturers HAMILTON, ILL.



EARLY ORDER DISCOUNTS WILL

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Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.
or J. W. ROUSE, Mexico, Mo.

PAT JULY 30, 1918

C.O.BRUNO NAILING DEVICE

Made for the Huffman Brood Frames. A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

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BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

Our Catalog is free for the asking

MARSHFIELD MFG. CO., Marshfield, Wis.

BEEKEEPERS

Place your order for supplies NOW and take advantage of the Early Order Cash Discount, 5 per cent for December, 4 per cent for January. Our stock of Standard Hives, Supers, Hive Bodies, Brood Frames, Foundation and all other Standard Goods is complete. "If you want the Cheapest, buy the Best."

Our aim is to give prompt service, highest quality and Guaranteed satisfaction to our customers. Send us a trial order. We feel confident you will be satisfied.

Our annual catalog will be ready for mailing January, 1921. It's free for the asking.

AUGUST LOTZ COMPANY, Boyd, Wisconsin

BEE SUPPLIES

We are prepared to give you value for your money. Our factory is well equipped with the best machinery to manufacture the very A-best supplies that money can buy. Only the choicest material suitable for bee hives is used. Our workmanship is the very best. Get our prices and save money.

Eggers Bee Supply Mfg. Co.

Incorporated

ROUTE 1, EAU CLAIRE, WIS.

FOR YOUR WINTER TRADE

HONEY

WHOLESALE PRICES ONLY

EXTRACTED HONEY
IN SIXTY POUND CANS

2-60 POUND CANS

$22.20

F. O. B., BOULDER, COL.

NOTE:—This Honey will be granulated, finest quality white alfalfa—sweet clover honey, this years production

If cash does not accompany order satisfactory references must be given. All orders subject to our approval.

THE **FOSTER HONEY** & Merc Co.

BOULDER, COL.

(MENTION THIS ADVERTISEMENT)

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BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lowistown, Illinois, U. S. A.

(Please mention Am. Bee Journal when writing)

HONEY FOR SALE

We have New York State light honey, 2 60-lb. cans in a case. Price on application.

I. J. STRINGHAM, Glen Cove, N. Y.
NASSAU, CO.

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We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Send Us Your Inquiries
A. H. RUSCH & SON CO.
Reedsville, Wis.

DADANT SYSTEM OF BEEKEEPING

BY C. P. DADANT

In this little book the author gives a pleasing account of his experience in honey production for more than half a century. He describes the many experiments conducted by Charles Dadant and his descendants in the Dadant apiaries.

The Dadants have been engaged in the production of extracted honey on a commercial scale for many years. More than 60 tons of honey have been produced in their apiaries in a single year by the Dadant system of beekeeping.

This book is worth several times its price to any beekeeper with a dozen colonies. The Dadant system shows how to keep more bees and get more honey with less labor.

Full information about the use of the large hive. 118 pages. Attractive cloth binding.

PRICE $1.00

AMERICAN BEE JOURNAL, HAMILTON, ILL.

We have obtained a large amount of 1 pound glass jars that we can offer at $6.85 per gross, F. O. B., Newark, N. Y.

Friction Top Pails all ready for delivery at Newark, New York

2½ pound cans, f. o. b.	$ 6.50	per hundred
3 pound cans, f. o. b.	7.00	per hundred
5 pound pails, f. o. b.	10.70	per hundred
10 pound pails, f. o. b.	16.00	per hundred

The above prices are f. o. b. Newark, of $1 per hundred less f. o. b. Baltimore, Md.

Now is a fine time to gather up your old combs and ship them in for rendering. Write for our terms and shipping tags. Highest cash prices paid for beeswax, or we will change your wax for foundation.

We have in reserve a complete line of bee supplies which we can quote you attractive prices on. We also have some special offers to make on 8-frame hives, bottom-boards and covers.

Send in your list of requirements and let us quote you on same.

Address THE DEROY TAYLOR CO., Newark (Wayne Co.), N. Y.

FRICTION TOP PAILS---GLASS HONEY CONTAINERS

2½ pound pails in 2 doz. shipping crates.	5 pound pails, 100 per crate.
2½ pound pails, 200 per crate.	10 pound pails, 100 per crate.

18 oz. screw cap glass honey containers, 1 doz. per case—fibre shipping cases.
We also carry a full line of Lewis supplies. Send list of your needs, or requests for catalog, to

DEPARTMENT B

WESTERN HONEY PRODUCERS, SIOUX CITY, IOWA

Crop and Market Report

Compiled by M. G. Dadant

For our December market page we asked the following questions of correspondents: 1. What portion of the honey crop is still in the hands of the beekeepers in your neighborhood? 2. How is the demand? 3. At what price is it selling, wholesale and retail? 4. Will your market take more honey at present prices than is produced locally? 5. What do you think is a fair wholesale price under present conditions? 6. What is the condition of the bees as they go into winter quarters? Of the honey plants? How do you regard the prospect for next year?

PORTION OF CROP IN HANDS OF BEEKEEPERS

There is practically an entire agreement on the part of reports coming in that the smaller beekeepers who sell in a retail way have almost entirely gotten rid of their present supply of honey. If it is not already disposed of, they expect to clean up pretty well by the holidays.

On the other hand, the larger producers who are forced to seek the wholesale markets, have a very large part of the crop still on hand. The Eastern States report from 25 to 50 per cent on hand, whereas the inter-mountain States have possibly a little more than this.

The situation seems to have improved considerably in California, and they report now a large proportion of the crop sold.

Throughout the country the demand on the part of wholesalers is very low, indeed, whereas the retail demand is good. Naturally, owing to the unsettled condition, the wholesalers are only buying from hand to mouth, and not getting in their season's supply of honey in the fall as is usually the case. For this reason the orders from bottlers and jobbers are at a minimum and they are therefore not in the market for so much honey as usual.

This would seem to indicate that the demand should pick up from now on, owing to the fact that the wholesalers will run out of honey and will necessarily have to call upon the jobbers and big packers for a fresh supply.

Prices at which honey is selling in a retail way have held up remarkably well, and we have only one or two reports where ten-pound cans are retailing at 25c per pound. In most instances the price is 30c to 35c, and this is universal throughout the whole country.

With the smaller beekeepers the stock of honey they produced themselves will not begin to supply their own trade generally, whereas the larger beekeepers claim they will have difficulty in disposing of the crop. This means, therefore, that the demand on the part of the wholesalers and jobbers will have to increase if the larger producers are to dispose of their crop at normal figures.

FAIR WHOLESALE PRICE

Indications of what the fair wholesale price should be vary greatly with different sections of the country. There seems to be no tendency, however, to a great slashing of prices, and throughout the East indications are that beekeepers think a fair price would be from 17c to 20c for white extracted honey, with a price of from $7 to $9 for comb honey. In the west there is an indication that producers are willing to sacrifice prices in order to move their crop. In some instances producers who formerly stated they were holding for 20c are now willing to take 15c to 18c for their crop if they can move the same immediately. The very lowest price we have had any indications of is in Arizona, where one car of dark amber honey sold for 11c, and the reporter stated he had another car which he is willing to sell for 10c. Utah white extracted is offered at from 14c to 16c per pound. There is a tendency on the part of producers in the West to want to dispose of their crop, and a buyer who could offer cash for immediate shipment could probably get some reduction in prices.

This slashing of prices, in the few instances, however, seems to be on the part of beekeepers who are outside of the different large associations who are handling the crop for their members. For instance, the California Association quotes all honey within the exchange as moving nicely, and at very fair prices. Honey outside of the exchange is from 3c to 5c per pound lower than what is being demanded by the exchange.

This, of course, has a very depressing influence upon the market, as buyers are not going to pay the Association a higher price as long as the lower priced honey is available outside.

The Texas Association has, of their own accord and by agreement, reduced their former prices from 3c to 4c per pound, so that their lowest grade amber honey is selling at about 14c per pound f. o. b. shipping point. However, there is very little honey left in the hands of producers there and the Association expects to be able to clean up the whole Texas crop without difficulty. .

Another thing which has tended to hold the prices down is the influx of large quantities of West Indian and foreign honeys into the New York market. West Indian honey is selling from 80c to $1.25 per gallon, or a price of less than 10c per pound, in many cases.

Of course, most of this is inferior honey, which would not grade up with any of our domestic products, but it will compete with it in many lines, such as in use for bakeries' products,etc.

As stated above, there is a tendency on the part of producers to willingly take a little less price than they had wanted per previous report to us. There seems no indication, however, of a large break in the market, and the lowest price at which white alfalfa honey is quoted is 14c f. o. b. shipping point.

Within the last two weeks there has been a stiffening of the market, and some reports are now coming in that there should be no difficulty in disposing of the complete 1920 crop before the new crop is available.

One point which made the producers so anxious to sell is the fact that in the last two or three years there has been such an extreme demand for honey that the whole crop has been sold previous to the holidays. This was not formerly the case before war times and we see no reason why beekeepers should demand all honey sold before the first of the year. This year conditions are abnormal and the demand will probably strengthen as the season continues, owing to the fact that the wholesalers only have very limited supplies on hand and must renew them as fast as they sell any to the retailers and other trade.

There seems to be no doubt in the minds of many that honey prices are to see a reduction before the 1921 crop is sold, and in fact there is now a reduction over what was formerly asked. The California Association is still holding to their original prices, and we have had no reports of any reduction on the part of any of the other large western associations.

From all indications, white honey is going to sell for awhile yet, at least, at a price equal to 15c per pound f. o. b. shipping point, while amber honey should command a price of 1c or 2c a pound less. In fact prices at which honey is retailing and with good demand in the eastern and central western market would not indicate that white honey should have to sell as low as 15c per pound.

As stated before, it is not a lack of demand on the part of the retailers and of the consuming public for honey, but more on the part of the wholesaler, who is very conservative in his buying, that has kept down the demand for large lots of honey.

We just have report of the movement of 200 tons of California honey to New York. This would indicate that the demand has increased, although we have no idea of what price was received for this shipment.

Just what the honey market will do within the next sixty days remains to be seen, and will depend entirely upon the demand of the consuming public, for the wholesalers cannot all hold out with their orders if the public demands honey.

ANOTHER CHRISTMAS AND ANOTHER NEW YEAR

Haven't all of us connected in any way with beekeeping in America much to be grateful for at this Christmas time, and much to hope for from the New Year?

Just to suggest Europe and the hard and terrible conditions over there, involving the beekeepers as much as any other class, makes us glad indeed that we are here and not there—here where there is law and order and peace and plenty.

In these days of readjustment in this country, when we are getting back to normal, getting back to times when a dollar will again be a dollar, the beekeeper, with his honey, is better off generally than the farmer with his wheat and wool and fruit—and where he can secure or make a local market for his product he is far better off than the general farmer.

Looking forward to the New Year: It will continue to be a time of readjustment, but not of so violent readjustment as is now going on. Honey will be in the new year better and more widely advertised to American consumers than ever before. It has fair promise to be more extensively used than ever before, and the beekeeper can hope with us that the abnormal and monstrously high prices charged today for the iron and steel and tin and for the white pine and the basswood that go into his supplies, will have to drop, so that his supplies may be made cheaper and the prices reduced just as fast as costs will permit. We hope for this as much as any beekeeper can.

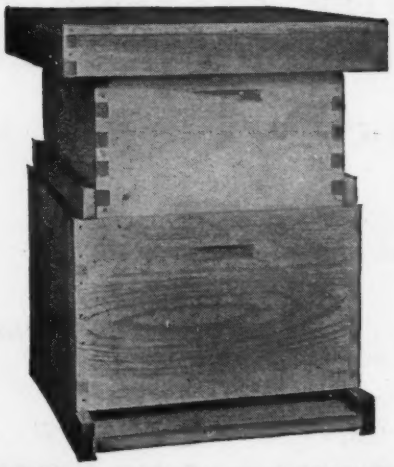
Then, recalling our beekeeping blessings here and now in America, and hoping for a prosperous season in 1921, let us wish each other a Merry Christmas and Happy New Year, and face the future with good courage and good sense.

THE A. I. ROOT COMPANY, West Side Station, Medina, O.

MODIFIED DADANT HIVE

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

Your present brood equipment can be put above the Modified Dadant hive used as full-depth supers.



You get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.

You get deep frames, large one-story brood-nest, frame space ventilation, excellence in wintering, swarming easily controlled.

MODIFIED DADANT HIVE FEATURES

1. Eleven frames, Langstroth length, Quinby depth.
2. Frames spaced 1½ inches for swarm control.
3. Extracting frames 6¼ inches deep.
4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.
5. Langstroth "Standard" equipment; easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. LEWIS COMPANY, Watertown, Wisconsin
DADANT & SONS, Hamilton, Illinois

TIME TO STUDY WOODS

For the Bee Man This is the Period "Between Hay and Grass"

While waiting for the honey-season to begin, suppose you investigate the relative values of different commercial woods. Few business undertakings call for more exacting care on the part of the buyer than getting the best lumber for the bee-man's use. In many respects bee-hive construction is like Greenhouse construction—both are most trying on the material used.

Cypress is the only wood that "stands up" in Greenhouse work. It resists the rot influences that infest the Greenhouse. No other wood is so thoroughly certified for this use as is Cypress.

If Cypress will "stand the racket" in Greenhouse construction it certainly will do the right thing by you in beekeeping.

READ CYPRESS BOOKS

Those who would get accurate information regarding Cypress wood and its extraordinary power to resist rot influences should provide themselves with copies of the Cypress Pocket Library. There are 43 volumes, each authentic and authoritative. **Write us** and tell us what subject you are interested in and will send you the appropriate booklet. We especially suggest you **write for Vol. 1,** with the unabridged U. S. Govt. Rept. on Cypress, "The Wood Eternal," that is a **buy** because it lasts so like—well, it lasts and lasts and lasts and lasts and lasts.

SOUTHERN CYPRESS MANUFACTURER'S ASSOCIATION

1251 PERDIDO BUILDING, NEW ORLEANS, LA. — 1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA.

FOR QUICK SERVICE ADDRESS NEAREST OFFICE

ALUMINUM HONEY COMBS

STANDARD LANGSTOTH SIZE AVAILABLE NOW

PRICE PER COMB 60c

Ideal extracting supers, modified. Dadant and Jumbo Combs will be ready for delivery after February 1, 1921.

Write for our new catalog containing full description and prices on

LEWIS BEEWARE
DADANT FOUNDATION
ALUMINUM HONEY COMBS

TEXAS HONEY PRODUCERS ASSOCIATION

1105 S. Flores St. P. O. Box 1048 San Antonio, Texas

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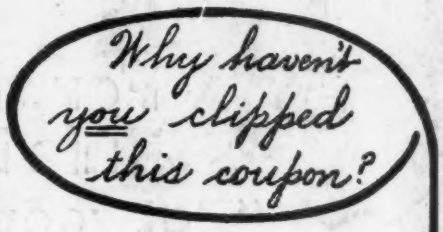

That purpose behind our organization to help Beekeepers get on—prompts us to remind you that we have a great enthusiasm in co-operating with you. We believe that there is a great future in this interesting profession. So we are happy to help in your work, in the interests of bigger and better business for you.

That is the reason we want you to use this coupon. It is self-explanatory. While we are mighty plain folks, we believe we know something about Beekeeping, as we have made a life work of it, and we are certain that the coupon will bring o you the individual advice of some one who knows Bees. We believe that the results will be gratifying to you.

Not only will this coupon put our Service Department at your disposal, but it will also bring to you the first three of our periodical circulars; letters dealing with current problems, and facts of particular interest to Beekeepers. The letters live up to their name, **"Live Topics for Live Beekeepers."** You cannot afford to be without either of these two services, as both are extended to you upon receipt of this coupon.

THE A. I. ROOT CO., Council Bluffs, Ia.
Gentlemen:

Please send me your circulars, "Live Topics for Live Beekeepers." And as I am interested in making the most of my honey production, I shall use your Service Department often. Just now I am particularly interested in:

____Wintering____Your New Airco Foundation

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I have_____colonies of bees in_____frame hives

Name_____

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